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The interest in classic computers and consoles has exploded over the last few years, and gamers are keen to go back to their roots. We all have classic gaming memories, whether it's clearing the first stage of *Donkey Kong* or remembering the first game we purchased for our ZX Spectrum. It's these moments that stay with us forever. With that in mind, we've decided to scour the last 12 issues of **Retro Gamer** and have compiled the best content from that period, just for you. From the history of *Out Run* and *Quake* to the story of the Commodore 64 and Mega-CD, we've left no stone unturned to deliver the greatest retro content. Enjoy the book!

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retro GAMER ANNUAL

THE ULTIMATE GUIDE TO CLASSIC VIDEOGAMING

CONTENTS

8 THE STORY OF SONIC THE HEDGEHOG
Takashi Iizuki reveals how Sonic became Sega's most important gaming franchise

18 THE MAKING OF COMBAT
Joe Decuir explains how he helped to create one of the Atari 2600's most iconic games

24 INSIDE THE COMMODORE 64
Learn how Commodore's top engineer created the world's bestselling 8-bit home computer

30 ULTIMATE GUIDE: RENEGADE
Everything you ever needed to know about the bone-crunching coin-op from Technos

36 ALL-TIME GREATEST BBC MICRO GAMES
Readers reveal their favourite games, while we quiz the developers behind them

46 ULTIMATE GUIDE: STAR WARS
We interview Mike Halley about his classic game and investigate its many conversions

54 THE MAKING OF SABOTEUR
Clive Townsend takes us behind the scenes of his excellent Spectrum game

60 THE CHRONICLES OF MIDNIGHT
We look back at the impact of Mike Singleton's *The Lords Of Midnight* and its key sequels

68 30 YEARS OF CODEMASTERS
David Darling explains how a budget brand turned into one of the UK's biggest publishers

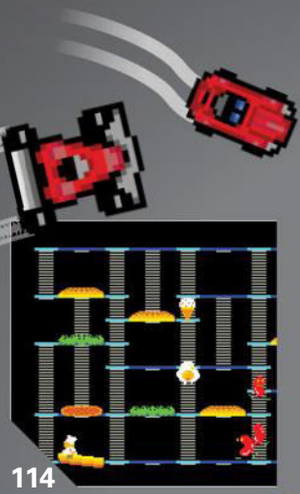
76 ULTIMATE GUIDE: HEAD OVER HEELS
Jon Ritman spills the beans on his ridiculously successful isometric adventure

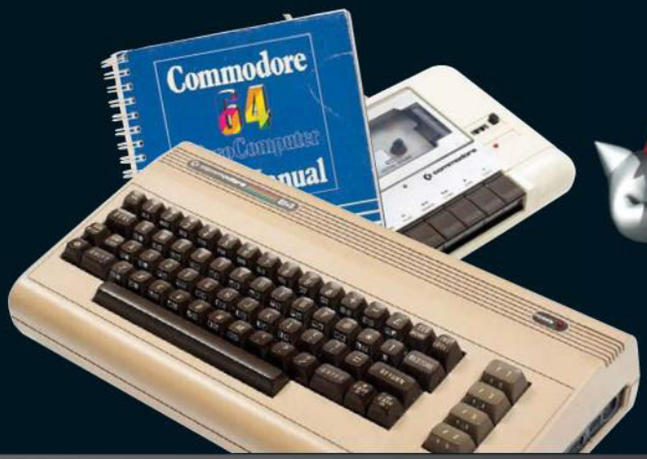
82 CELEBRATING THE MACINTOSH
We reveal how Apple's brand on home computers keeps on evolving

90 THE MAKING OF BLUE LIGHTNING
Chuck Sommerville explains how he helped create one of the Lynx's best launch games

94 SEGA'S BIG GAMBLE
Find out if Sega's decision to create two expensive add-ons for the Mega Drive worked

104 THE LEGACY OF STREET FIGHTER II
Yoshinori Ono and others explain the impact of Capcom's incredible arcade sequel





114 ULTIMATE GUIDE: BURGERTIME
Discover all the ingredients that turned this classic coin-op into an essential experience

120 FROM THE ARCHIVES: ACCLAIM
We go behind the scenes of one of gaming's most controversial publishers

128 THE MAKING OF WALKER
Learn how Psygnosis created its superb Amiga mech-based shoot-'em-up

132 MINORITY REPORT: AMIGA 500
Kim Justice is on hand to tell you about some of the Amiga's quirkiest games

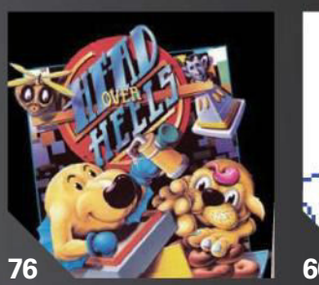
136 THE MAKING OF WIPEOUT 2097
We reveal how an add-on disc turned into one of the PlayStation's best sequels

144 THE HISTORY OF OUT RUN
Yu Suzuki and others explain the enduring legacy of Sega's hit arcade series

154 20 YEARS OF QUAKE
Key developers explain how they created one of id Software's most explosive franchises

164 NINTENDO'S 3D GAME-CHANGER
The programmers behind some of the N64's greatest platformers pay tribute to Mario

174 RETRO REVIVAL: INSIDE OUTING
If you've never had a chance to experience this gem you're really missing out



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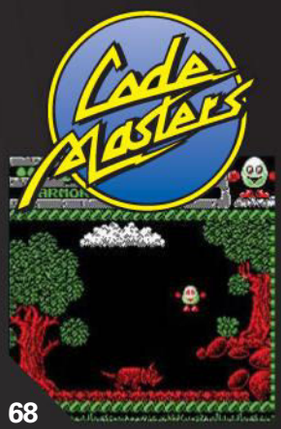


68

30

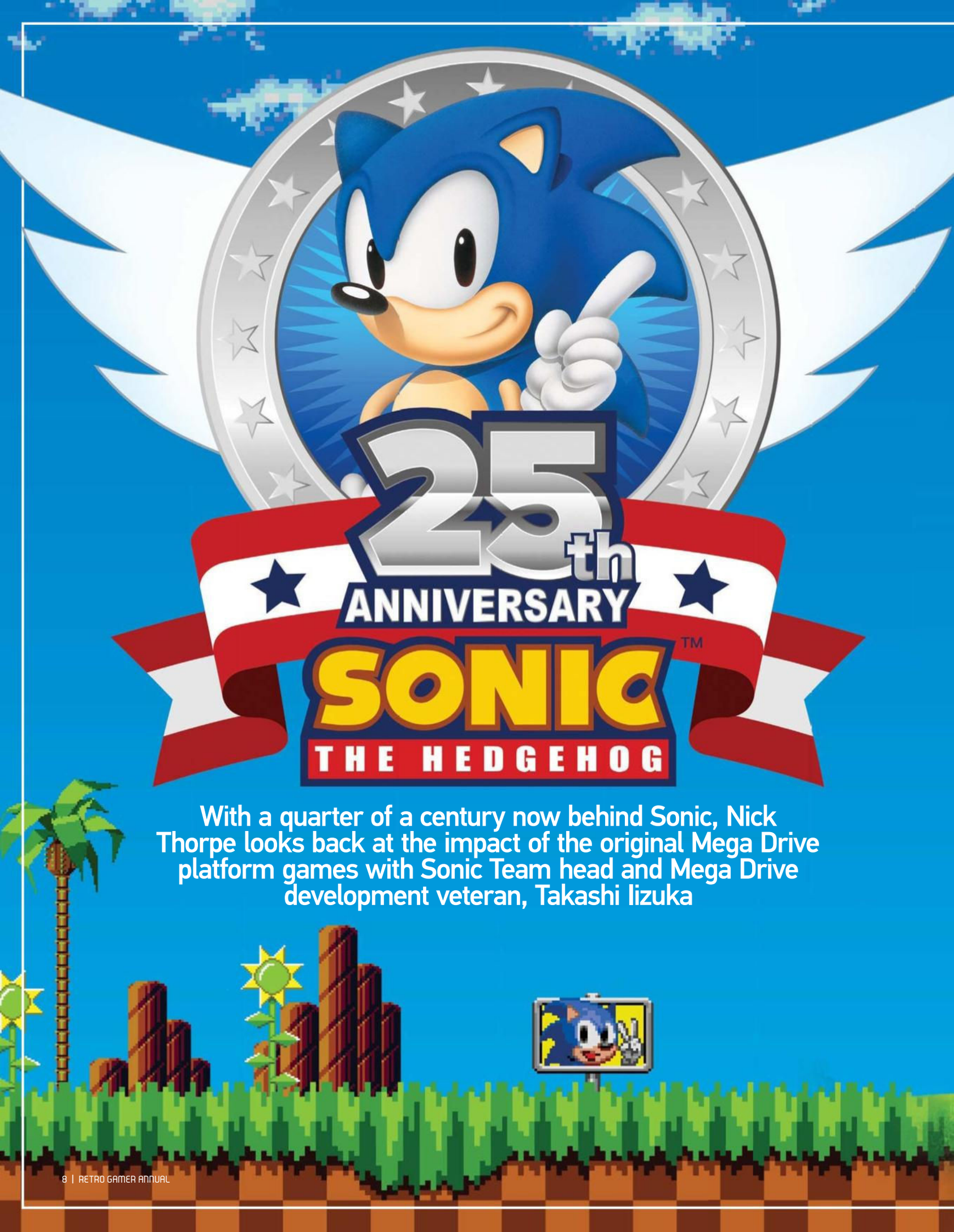
46

136

90

164

154



With a quarter of a century now behind Sonic, Nick Thorpe looks back at the impact of the original Mega Drive platform games with Sonic Team head and Mega Drive development veteran, Takashi Iizuka

There aren't many games that could be described as revolutionary, and far fewer series – yet the quartet of *Sonic The Hedgehog* platform games on the Mega Drive can justifiably be described as such.

At the highest level, the *Sonic* games had a wide impact that both drove and reflected the changes the videogame market was undergoing in the Nineties. The original game intensified the rivalry between Sega and Nintendo, bringing the two companies to an even footing for the first time, as well as providing an early example of celebrity involvement in game development. The sequel signified the growing globalisation of the videogame market – the game was the result of collaboration between Japanese and American developers, and a full global launch was managed within a week. For *Sonic 3* and *Sonic & Knuckles*, the concept of an expansion pack was pioneered on consoles. However, first and foremost they were platform games featuring fantastic game design and amazing technical achievements.

One of the people who best understands the importance of *Sonic*'s 16-bit era is Takashi Iizuka, a Sonic Team veteran who now heads up development of the series. "While I was seeking employment at Sega, I bought *Sonic The Hedgehog* to understand the job and products of the company, and that was my first encounter with *Sonic*," he recalls. "At that time, I only had Super Nintendo, so I was impressed by the vivid screen and speedy gameplay of *Sonic*, and I remember thinking that I wanted to make a game like this if I got hired by Sega."

The simple fact that Iizuka only had a Super Nintendo highlights one of the key reasons that Sega needed *Sonic*. After being slow to jump into the 16-bit generation of consoles, Nintendo had arrived – and while Sega had a sales head start, Nintendo had a more powerful machine. Sega needed to differentiate itself from the competition, and to its credit it was already doing so. The Mega Drive was already catering to older audiences with complex RPGs and sports simulations. What's more, Sega was aggressively advertising against Nintendo.

To advance Sega's agenda of distinguishing its offering from the competition, *Sonic* needed to achieve three things. Firstly, the game and character had to fit into the plan to appeal to a slightly older demographic than the preteen audience associated with Nintendo's machines. Naoto Ohshima's initial designs of Sonic gave him sharp teeth, a human girlfriend and cast him as the vocalist of a rock band. While these harder-edged attributes would ultimately fall away, Sonic's attitude remained – he was impulsive, impatient and cool. "In the Nineties, Mickey Mouse, Pooh, all those animal-themed ▶

» We're glad a lot of these early concept bosses were dropped. Why on earth is Dr. Robotnik a bee?

THE MOD SCENE

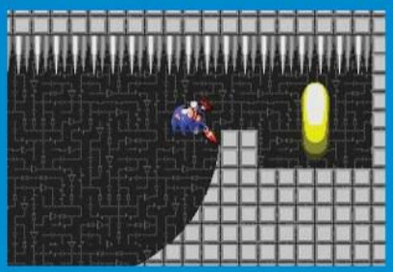
The Sonic community has been producing interesting mods for the Mega Drive games for years – here are five of our favourites

SONIC THE HEDGEHOG MEGAMIX

■ This ambitious team project is a complete overhaul of the original *Sonic The Hedgehog* game, featuring new visuals, music, bosses and gameplay mechanics, as well as a range of additional characters. What's most impressive is that the entire thing has been ported to Mega-CD, allowing anyone with a blank CD-R to play it on actual Sega hardware.

SONIC 1: THE NEXT LEVEL

■ If you want to see how far a Mega Drive can be pushed technically, take a good look at this short, but incredible, effort. The animation in *Sonic 1: The Next Level* is superb, the sampled music is amazingly clear, and some of the special visual effects call to mind Treasure's programming prowess – especially the climactic final boss fight.



SONIC VR

■ Do you consider yourself an expert on everything *Sonic*? Beating this fiendish mod without cheating will prove it. This 'virtual reality training' game gives you a variety a short challenges which test your speed, problem-solving skills and mastery of *Sonic*'s physics. Highlights include challenges such as 'The Pain Train' and 'Roadkill Factory'.

SONIC CLASSIC HEROES

■ Remember the core mechanic of 2003's *Sonic Heroes*, where you controlled teams of three characters instead of individual characters? This impressive technical mod adds that function to the first two *Sonic The Hedgehog* games, allowing you to switch between Sonic, Tails and Knuckles on the fly in order to use their unique abilities, based around speed, flight and power respectively.

BIG'S FISHING DERBY

■ This might just be the craziest mod that we have ever seen – not only does it do away with the blue blur (in favour of everyone's favourite big purple cat), it chucks the entire platform gameplay concept out of the window and replaces it with a fun arcade-style fishing game. When you've finished it, try *Big's Big Fishing Adventure 3* for more fun.

» *Sonic 2*'s Chemical Plant Zone provided a fine opportunity for Sonic to show off his extra speed.

▶ characters were all friendly and cute, and that was the matter of course," remarks Iizuka. "So seeing Sonic being speedy and edgy in that time, made me feel that he is a character whom has the exact same identity of the company Sega itself. Maybe everyone felt that way at the time too."

The second thing that Sega's new game needed to do was provide a strong demonstration of the Mega Drive's capabilities. The machine had been out for a couple of years, and was a known quantity, but there was no 'killer app' that new consumers could associate with the console. "I think the first *Sonic The Hedgehog*, which was born in Mega Drive, was the title that drastically expanded the possibility of the Mega Drive hardware," says Iizuka. "Although the spec of the Mega Drive hardware was lower than Super Nintendo, the graphics were as good as the Super Nintendo games." This was the joint work of the experienced graphic artist Rieko Kodama, whose previous work included *Phantasy Star* and the *Alex Kidd* games, and relative newcomer Jina Ishiwatari, who would go on to help define the look of the *Sonic* series. "It also achieved screen rotation, which was never done in the previous Mega Drive games," Iizuka continues. This was the responsibility of programmer Yuji Naka, who had cut his teeth on high profile arcade conversions for the Master System. As well as this technical feat, he was responsible for *Sonic*'s advanced physics and the efficiency that allowed Hirokazu Yasuhara's stage designs to be brought to life.

» Sonic's speed was more of a reward than a requirement – the original game often slowed things down.

» Once upon a time Sonic was going to have a girlfriend and this is what she was going to look like.

» We're big fans of the original *Sonic The Hedgehog* art. It still manages to look fantastic.

"I think Sonic was a title which contributed on improving the quality of future Mega Drive-released titles"

Takashi Iizuka

For the audio, an oft-noted weak point of the Mega Drive hardware, Sega did something incredibly bold and sought celebrity involvement. While Dreams Come True might not be a household name in the West, in Japan the pop band was making huge waves – it had already produced a platinum debut album and was gaining momentum, hiring the bassist and composer for the band, Masato Nakamura was a coup for Sega. The company had licensed music before with games like *Michael Jackson's Moonwalker*, but this was a bigger deal – here was a legitimate star from the wider world of entertainment taking an active role in game creation.

I think *Sonic* was a title which contributed on improving the quality of future Mega Drive released titles," says Iizuka. We can't argue – it's hard to keep track of how many programmers have cited the game as a bar against which they measured their own work.

The last thing *Sonic* had to do, and arguably the most important, was crack the American market. Sega was already doing good business in Europe, and the Mega Drive was never going to usurp the SNES in Japan. North America was up for grabs – *Sonic* would be going head to head with *Super Mario World*, and Sega Of America seized the opportunity. A promo tour invited players to try both *Super Mario World* and *Sonic The Hedgehog*, and advertising aggressively compared the two. Tom Kalinske made the call to bundle the game with the console, a move which would boost Mega Drive sales considerably.

It was that success in North America that led to another unusual move – the creation of a truly international game development team. *Sonic The Hedgehog 2* was developed at Sega Technical Institute in the USA, with a variety of Japanese staffers making their way across the Pacific to collaborate with local talent. The arrangement was put together by Mark Cerny, who had previously spent time working at Sega in Japan.

Sonic The Hedgehog 2 was a straight evolution of the original game's concepts. It had more stages, it was more varied and it was faster – but the latter wasn't always a sure thing. Sonic's speed was always something that needed to be used with caution, and in the early stages of the game the team considered making it even riskier by allowing Sonic to be stunned by running into walls at top speed. In the end, they went the other way. Sonic's running speed ▶

RING COLLECTOR

Peter Robinson is the admin of the Sonic Collections Page on Facebook, and owns some incredible Sonic merchandise

What was your first encounter with *Sonic*?
I was eight or nine years old and I begged my mum and dad for a NES one Christmas, but my best friend was getting a Master System, so I got one as well with *Sonic 2*. That's where it all began.

What was the first piece of *Sonic* merchandise you picked up?
Very first was a plush that a friend gave me at school, which I still have. It was Fleetway's *Sonic The Comic* where I really got into the character of Sonic.

What is it about *Sonic* in particular that drew you to collecting?
I used to collect everything from Nintendo to Xbox and had so much that one day, I thought I'd just like to concentrate on one particular character. Sonic has always been my favourite videogame character, even when the games have dipped quality-wise. I guess it's because it's the first game I played, what I grew up playing and in the Nineties there wasn't much around that was cooler than the blue fella.

How many *Sonic The Hedgehog* items do you currently own?
I've never sat and tried to count it all, to be honest. I know Guinness World Records needs 3,000 individual items to consider an entry, I'm fairly sure I'm not far off that including everything – it's just getting the time and patience to go through it all!

Are there any items or curios in your collection that you'd consider particularly unusual or noteworthy?
I've got a few different prototype items, like the ReSaurus action figures and funky bobble heads which I've never seen before, then there's original artwork I own. The fruit machine [inset below] is always a favourite of people who see it too.

Are there any items you're still after but haven't found yet?
One thing I want, and I've always said once I had it I would be happy, is one of the six-foot statues like the one that was at Alton Towers. I've seen a few pop up on eBay but never managed to get one... yet!

» Not everyone was a fan of *Sonic 3*'s distinctive-looking art style. Personally, we quite liked it.

cap was listed, and Sonic gained a new move in the form of the Spin Dash – a variation on Sonic's trademark spin attack that could be launched from a standing start, providing instant momentum and a new way to attack enemies.

However, the biggest new addition was a little fox by the name of Miles Prower. "In *Sonic 2*, Tails was added as a player character, and along with the two-player versus mode, you were able to play in '1.5 player' gameplay, allowing two players to play at the same time in the normal mode, too," Iizuka notes, and it's an addition that he feels brought a lot to the series. "Titles which you can say, 'Want to play together?' when your friend comes to your place, will be played for a long time, so, personally, I think multiplayer is a meaningful feature. So not only in *Sonic 2*, but also in *Sonic Adventure 2*, *Sonic Heroes*, etc., we added multiplayer features several times in the *Sonic* series. "

Sonic The Hedgehog 2 was a tough game to develop, with revisions being made right up until the production deadline. However, it was a resounding critical success – in fact, many players still consider the game to be the finest entry in the series. Why does Iizuka think the game is held in such high esteem to this day? "Game design, level design, graphics – in all aspects, I think that *Sonic 2* exceeded the previous title and had a high perfection," he replies, "but for me, personally, the background music and special stage made *Sonic 2* stand out even more."

It wasn't just a superb game, but a superb piece of gaming business. In order to have the game out in time for Christmas 1992, the company needed to co-ordinate its international launch strategy. While it wasn't a simultaneous worldwide launch, it was as close as you'd get in those days. For the sake of comparison, the comparable blockbuster launch *Super Mario Bros. 3* took almost three years to complete its international release – *Sonic 2* took a matter of days. There was no time for hype to dissipate, and six million sales resulted.

THE GANG'S ALL HERE

Meet some of Sonic's weird and wonderful friends

ROUGE THE BAT

■ A treasure hunter and spy who stakes a claim on all the world gems , the only thing more obnoxious than Rouge herself is her painful hotter/colder Easter-egg hunt gameplay. Do yourself a favour and don't Google her without SafeSearch on.

SHADOW THE HEDGEHOG

■ If you've ever wondered what Sonic would look like if drawn by a Linkin Park fan, wonder no more. Shadow is Sonic's edgy nemesis and even got his own game, in which he uses guns and glitches through stuff.

CHARMY BEE

■ 'Why not Charmy *The* Bee?' we hear you cry. While we're not entirely sure what Sega's line of thinking was, we'd suggest it's because the little fool doesn't deserve it and anyone who has heard him witter on in *Sonic Heroes* will probably agree. Charmy is the worst. The *worst*.

KNUCKLES THE ECHIDNA

■ Guardian of the Master Emerald and a friendly rival to Sonic, although Sega took even more liberties with echidna physiology than it did with Sonic – instead of waddling around eating ants as he should, Knuckles is a hard-punching badass

MILES **'TAILS'** PROWER

■ A plucky little fox with two tails, which can be spun at high speeds to allow limited flight. He's Sonic's best friend and a master mechanic, hence why he frequently turns up in mechs or planes. He can be a bit of a know-it-all, but he's a loyal sidekick to Sonic all the same.

BIG THE CAT

■ The single greatest character ever created, this lumbering slab of brilliance makes up what he lacks in smarts with sheer determination. His best friend is a frog called Froggy, who frequently runs away – that's why *Sonic Adventure* sees him repeatedly going fishing to find his missing buddy.

E-100 SERIES

■ There have been several playable Robots over the course of the series, but we didn't start playing *Sonic* games to mess around with machine guns and flamethrowers... but then again, *Shadow The Hedgehog* exists so all bets are off.

ESPIO THE CHAMELEON

■ After a few years of designing anthropomorphic animals, Sega decided to pay attention to what the relevant creatures actually look like and how they behave. As a chameleon, Espio is able to disguise himself – he's a self-proclaimed ninja warrior and pretty cool.

VECTOR THE CROCODILE

■ Vector is secretly one of the oldest *Sonic* characters, having originally been designed as the keyboard player in Sonic's band for an unused Sound Test feature in the first game. Still, he finally emerged in *Chaotix* before returning as the muscle on his team in *Sonic Heroes*.

SONIC THE HEDGEHOG

■ The star of the show and Sega's enduring mascot. Factual accuracy was clearly of no concern when designing him – real hedgehogs have a top speed of around 12mph, are not blue and do not wear sneakers. Before his playable debut, he appeared as a mirror ornament in arcade driving game *Rad Racer*.

AMY ROSE

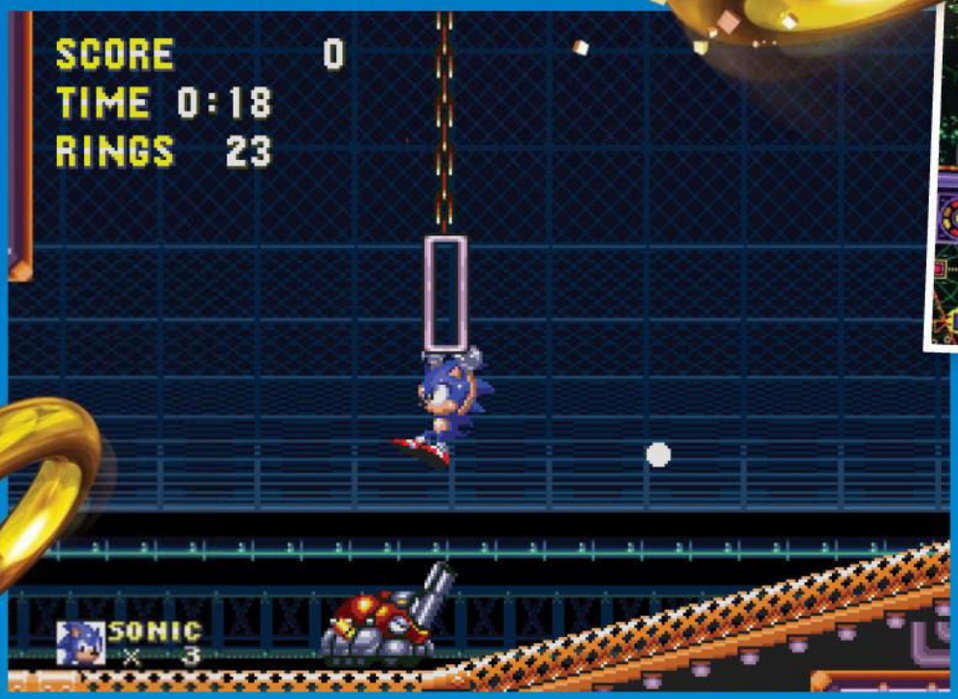
■ Sometimes mistaken as Sonic's girlfriend, Amy is simply besotted with him and while the two are good friends, there's nothing more going on unless you delve into the plentiful fan fiction (for the love of God, never do that). She wields a massive hammer, which she's surprisingly handy with.

CREAM THE RABBIT

■ No, that isn't an instruction. Cream made her debut in the GBA spin-off series, her flappy ears working like Tails' tails in allowing brief flight. She's usually accompanied by the brilliantly named Cheese The Chao, a dapper little chap who is much more likeable than Cream herself.

» The official artwork for *Sonic Spinball*, which was released on the Mega Drive in 1993.

» This early *Sonic* concept art can be found in the rather-good *Sonic Gems Collection*.



» We'd go as far as to say that *Sonic Colors* is one of the best of the recent *Sonic* games. If you're not played it you really are missing out.

The following game would prove to be the most ambitious of the lot – and it was the point at which Iizuka joined Sonic Team. For the young designer who was just coming off of *Golden Axe III*, it was a huge moment. "As noted previously, I did have a feeling that I wanted to make *Sonic* even before I joined Sega, so when I was told that I will be able to work on *Sonic 3*, I was very delighted," he remembers. "Before I went to the USA, my thoughts of *Sonic 3* were expanding, and after I officially joined the team, I was writing several notebooks filled with game design ideas."

"At that time, the very new technology of 3D expression using polygons was investigated," Iizuka recalls. It's a surprising admission – the Mega Drive wasn't a machine that was particularly gifted with 3D capabilities, even with additional technology involved. "We weren't able to achieve the goal of having *Sonic 3* be '3 for 3D' but we did achieve 'three for three characters and three routes.'" Sonic and Tails were joined by Knuckles, a feisty echidna with the ability to glide and climb walls. "From the beginning of *Sonic 3*'s development, when Knuckles became a playable character, the idea to have his own particular route where only he can go in each stage was confirmed. So to create an ability that makes Knuckles go to places where Sonic and Tails can't go was wall climbing and gliding."

Additionally, players gained the ability to control Tails during flight, allowing for greater exploration of levels. The level designers were stretched thin to accommodate it all. "From a game design perspective, we needed much bigger levels compared to previous titles, and we were challenged to create the multiple routes which can be changed depend on the player character you are using," says Iizuka. What's more, Iizuka notes that the new features created some level design problems that were hard for the team to accommodate for. "It was very fun to create those Knuckles-only routes, but as his ability was too strong, he could climb to where he shouldn't go, and/or use the glide and ignore everything and get to the goal easily… so the debug was very tough."

From a character design perspective, Knuckles stands out as being even more aggressive and hard-edged than the already edgy Sonic, which was a deliberate choice. "He's actually not a villain, but was his first rival," Iizuka points out. "Tails in *Sonic 2* was on Sonic's side and was his little brother-like character, so in *Sonic 3* the idea of creating a rival came very quickly. But we didn't want to have just an enemy character, and we wanted to make him playable too, so we added the story of 'was tricked by Eggman,'" – or, for the retro purists, Robotnik. "Knuckles was not made to be a cute character unlike Tails, so we made him look strong and cooler by having dreadlocks. After more than 20 years he is also still one of the popular characters."

Of course, the eagle-eyed amongst you will have noted that Knuckles was in fact not playable in *Sonic 3* – he remains firmly in the antagonistic role from the second you meet him in Angel Island Zone to the moment you finally topple him in Launch Base Zone. However, that's got a lot to do with the scale

"We needed much bigger levels compared to previous titles, and we were challenged to create the multiple routes"

Takashi Iizuka

» By *Sonic & Knuckles*, abstract checkerboards were out and more realistic brickwork was in.

of the game. "*Sonic 3* was aimed to be more epic with larger level and various stages. But because of this, development took longer than expected, and we found out that the amount of the data may exceed the cartridges used at that time," Iizuka remembers. "Unfortunately, we decided to divide the game into two titles." You can see this in *Sonic 3* alone – the level-select screen lists levels that don't exist and Knuckles appears on the end post of every level but can't be played.

"We really wanted to make a complete version with first part and second part combined," Iizuka recalls. Of course, doing so would have been prohibitively expensive – a 32MB cartridge with save memory was enormously costly at the time. "Then Naka-san, who was the main programmer at that time, suggested docking the two cartridges. First we were very worried if that could really happen or not, but when the hardware development team achieved this idea, we were very happy." The second half of the game was thus released as *Sonic & Knuckles*, a cartridge with a cartridge slot on top. It could be used as a standalone game, or combined with *Sonic 3* to make the complete game. There were bonus features, too – owners of both *Sonic 3* and *Sonic & Knuckles* could play the Doomsday Zone, a final battle that was only accessible through the combined game, and Knuckles could be added to *Sonic 2* ▶

» Knuckles was always intended for *Sonic 3*, but finances and deadlines made this impossible, he was made playable in *Sonic & Knuckles*.

SUMMER OF SONIC

This year also sees the return of Sonic's own convention – we speak to its organisers to find out more

How and when did Summer Of Sonic originate?

Svend Joscelyne: Summer Of Sonic originally started in 2006 as a one-off fan project I created to celebrate Sonic's 15th Anniversary. Back then, it was just a website, not a live convention – a collaboration between different fan sites that wrote interesting articles, interviewed Sega and Sonic Team celebrities, and held contests. We even had a virtual birthday card for Sonic that users could sign.

What prompted you to turn it into an offline convention?

SJ: It wasn't really our intention to pivot from an online website to a live convention; we just reused the name for the 2008 event because it was too good to use for a two-week project!

The idea for a live event came when a meeting of like-minded *Sonic* fans, who previously only knew each other online, got a bit out of hand. What started out as four guys turned into about 30 people dominating a pub, after word had spread. It made me realise that Sonic was actually bringing people together, years after we were all playing the games on our Mega Drive consoles.

With the help of Adam and Kevin Eva (the then-Sega community manager), we set out a plan in 2008 to hire a hall and decorate it so these 30 people could have their own space to hang out. Of course, word spread again and we ended up having to fit 300 people in a 200-capacity space! Good times.

What sorts of things generally take place at Summer Of Sonic?

Adam Tuff: A wonderful aspect of the *Sonic The Hedgehog* universe is the variety of media he has appeared in. The result is that Summer Of Sonic has become a celebration of a multitude of aspects – not just the videogames! The fanbase is extraordinarily talented, and so we encourage guests to show off their skills with art and cosplay contests. We have been extremely fortunate to be able to use Summer Of Sonic as a platform to show off new and upcoming titles – a feature that always attracts large crowds. We also have an incredible line up of Sonic celebrities from every corner of the franchise, including members of Sonic Team, composers, artists, and voice actors. We have even attracted big *Sonic The Hedgehog* names like Yuji Naka, one of the creators of Sonic, and the current head of Sonic Team, Takashi Iizuka.

Do you get any support from Sega?

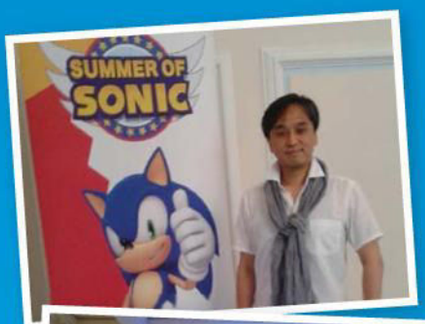
AT: Sega have been such an incredible source of support financially and logistically. We've worked with so many enthusiastic people from Europe, America and Japan, and every event always feels like such an immense team effort. We cannot thank all those involved enough!

How has the event changed over the years?

SJ: We've really come a long way since 2008. Back then, we just had a small hall, a stage and a Mega Drive hooked up to a projector. As the years went on, the venue has increased five-fold and Sega's support became stronger as we became a pseudo-official event. This fan project is often listed in press releases alongside official Sega America events, it's mad! The Sonic Team is especially appreciative of the event, which for us is incredibly humbling.

Just as important are the things that haven't changed. The Summer Of Sonic crew has largely been the same since 2008, so we now have the experience and camaraderie to put on a good show. It just feels like a group of best friends throwing a party.

We've also never taken our sights off of what makes Summer Of Sonic the exciting show it is. For us, it's all about fans meeting up in one place to make friends and have fun. Everything else is gravy, but as long as we focus on that core element, we always have a show that makes *Sonic* fans feel welcome.



SPEEDING INTO THE FUTURE

As part of Sonic's 25th anniversary celebrations, two new games have been announced. Here's what to expect next year...

PROJECT SONIC 2017

PS4, XBOX ONE, NINTENDO NX, PC

■ The next 3D game in the series is set in "the darkest of times" and appears to have a more serious tone than recent *Sonic* games, with players invited to "join the resistance". What we've seen so far is the long-spined, green-eyed (modern) Sonic racing through a city that's being attacked by two enormous robots, which look like *Sonic Generations*' version of the Death Egg Zone boss. Classic Sonic, last seen in *Sonic Generations*, lends a little bit of a hand by smashing away some debris and then speeds off towards the laser-spewing baddies with his modern counterpart. *Project Sonic 2017* is being developed by the Sonic Team staff responsible for *Sonic Colours* and *Sonic Generations*, and it's scheduled for the holiday season of 2017.

» There's little information about *Project Sonic 2017*, but we're glad classic Sonic appears in it.

SONIC MANIA

PS4, XBOX ONE, PC

■ This new 2D game celebrates *Sonic*'s past with redesigned versions of classic levels from Sonic's 16-bit platform games, alongside brand-new levels, enemies, bosses and the 'Drop Dash' move that allows Sonic to rocket forward as soon as he hits the ground. Visually, it could pass for a lost 32X or Saturn game, with extra colour and smoother animation pushing *Sonic Mania* past what the Mega Drive could do, and the music is reminiscent of *Sonic CD*.

Green Hill Zone has received a makeover, with Batbrains lurking in an enormous new cavern section. A new boss has been added to the stage, which adds a twist to the old Robotnik wrecking ball template – the two tethered spheres can switch between being the attacker and the target, and swing from a central pivot. However, the big attraction of the first playable version is the brand new Hollywood-themed Studiopolis Zone. The level is filled with spring bumpers, launch pads and breakable windows, as well as broadcast trucks that can transmit Sonic through satellites. Better yet, it's also packed with references to classic Sega games – we've seen nods to *Streets Of Rage*, *Daytona USA* and even an old *Sonic* popcorn machine.

Sonic Mania is being developed by Sega in collaboration with PagodaWest Games, Christian Whitehead and Headcannon Games, and will arrive in spring 2017.

» *Sonic The Hedgehog 4* was an episodic release across two separate downloads. *This is Episode 2*

▶ if you also owned that game. Expansion packs had been commonplace in computer gaming, but not on consoles, and the execution was widely accepted as a good thing. Of course, the team can rest happy too – many fans consider both games part of a whole, rather than two games with a gimmick.

Of course, those things weren't all that *Sonic 3* and *Sonic & Knuckles* brought to the table – new elemental shields gave additional abilities to Sonic, including a double-jump, an air-dash and a bounce attack. Hiding gigantic rings throughout each level for special stage access encouraged players to explore a bit as well as perfecting their fastest routes. Oh, and a new, less abstract art style pointed towards Sonic's future direction, in which he'd visit realistic cities and interact with humans.

The change of direction in the 3D era has often been a point of contention amongst long-term fans of the series, but in recent years Sonic Team has been using the Mega Drive games as reference material with increasing frequency. Side-viewed gameplay has been employed commonly since *Sonic Unleashed*, *Sonic Generations* gave us glorious updates of classic stages, and *Sonic Lost World* featured an abstract art style that hadn't been seen since the very first games in the series. "3D games are dynamic and the visuals are grand too, but personally I like the 2D game from the Mega Drive era, too, as it is easy to play," says Iizuka when asked about this trend. "We brought up various ideas in the past but with limited hardware spec, so we do have ideas that we weren't able to apply at that time. Even now when I think about creating a new game, I always try to think applying the good part of 3D and good part of 2D to be applied in that new game."

Of course, the influence of Sonic's earlier outings goes much further than that too. Every E3 conference dig can be traced back to the console war that truly fired up when Sonic and Mario were put side by side.

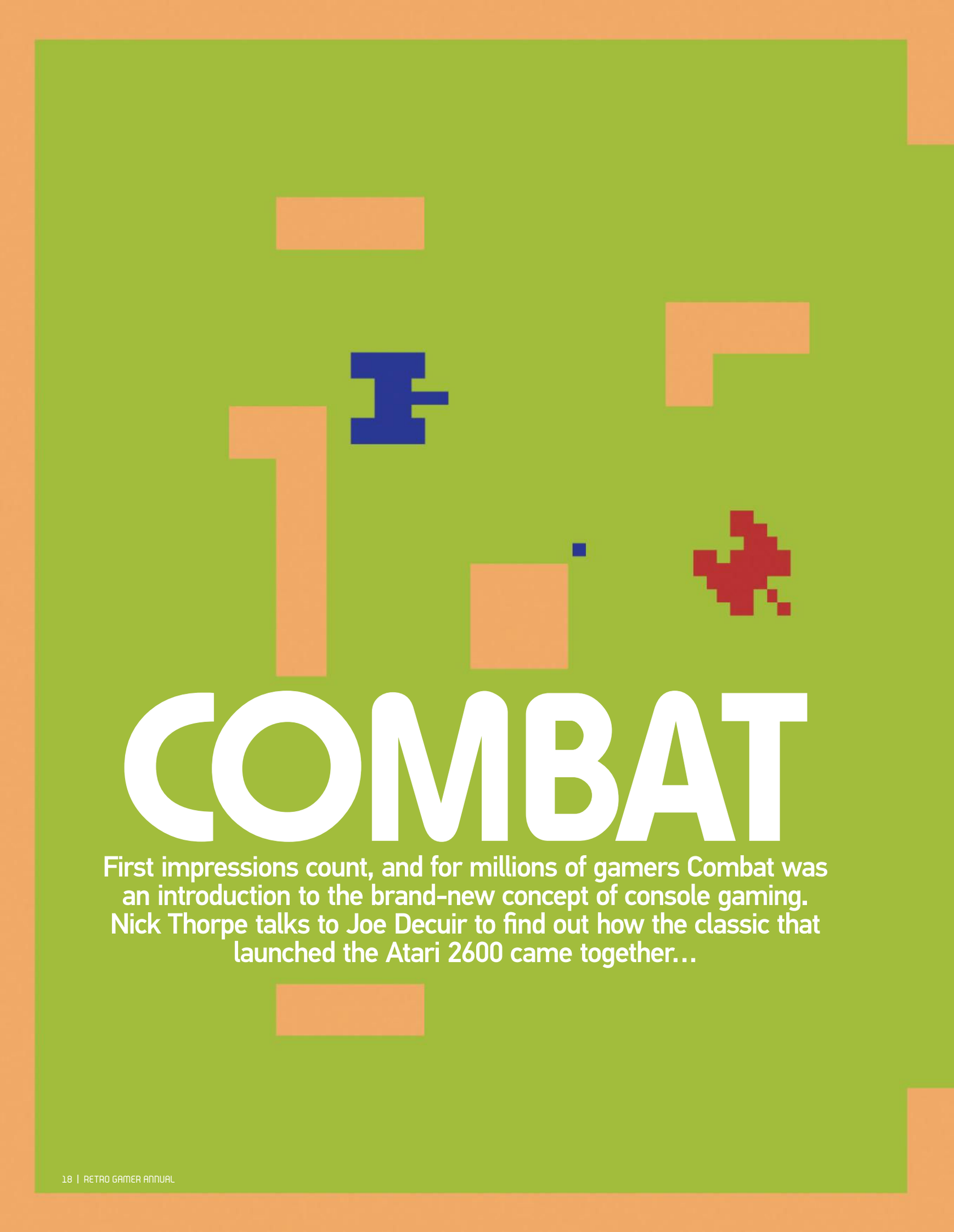
» Sonic dashes his way through Marble Garden Zone because he suddenly remembered he left the kettle on.

Every time console games have pushed to obtain an older target age group, that's something that *Sonic* was on the leading edge of – and broadening demographics has been important to the growth of the games industry, whether for reasons of content (such as *Grand Theft Auto*, a game that couldn't be sold to the under-18 audience in good conscience) or appeal (games like *Dr. Kawashima's Brain Training*). Five years prior to the co-ordinated international launch of *Sonic 2*, your gaming experience depended heavily on where you lived – you might be playing a NES, a ZX Spectrum, an MSX or something else entirely depending on region. These days, with same-day global launches and region-free consoles, that seems like a lifetime ago. And of course, every time you buy DLC, you might want to spare a thought for *Sonic & Knuckles*. And, of course, all of that is to say nothing of the legion of mascot platform games that came in the wake of the *Sonic* series.

Likewise, the games have brought a generation of creators into the fold. The kids who grew up idolising Sonic The Hedgehog are now the kids making games like *Freedom Planet*, and in some cases even working closely with Sega – people like Christian Whitehead and Simon Thomley were raised in the fan scene and have taken a key role in continuing the legacy of those early Mega Drive games, both through direct conversions and with projects like *Sonic Mania*, a love letter to the 16-bit heritage of the *Sonic* series. Whatever Sonic is up to in the present day, the historical significance of that quartet of Mega Drive games is assured.

» *Sonic & All-Stars Racing Transformed* is easily the best spin-off from the *Sonic* franchise.

But for all of our assessment of Sonic's legacy, it's Iizuka as the guardian of that legacy who truly matters. "I do not want say anything too exaggerated, but I think the *Sonic* games were one of the titles that energised the videogame industry of the Nineties," he says "Especially in the West, by having *Sonic* in the market, the hardware competition of Nintendo versus Sega was very clear, and that lead to the result of having more hardware in the market and many third parties joining to create games on Mega Drive and/or SNES. Of course, this wasn't just because of *Sonic*, but to Mega Drive, I think *Sonic* was a great trigger," concludes the developer. A trigger is a fine way to think of it – the Mega Drive was always potent, but *Sonic* propelled it like a speeding bullet into the realm of the all-time great consoles. 25 years later, the impact of that shot is still being felt.



COMBAT

First impressions count, and for millions of gamers Combat was an introduction to the brand-new concept of console gaming. Nick Thorpe talks to Joe Decuir to find out how the classic that launched the Atari 2600 came together...

DEVELOPER HIGHLIGHTS

STAR RAIDERS
SYSTEM: ATARI 8-BIT
YEAR: 1979

WARLORDS (PICTURED)
SYSTEM: ATARI 2600
YEAR: 1981

YARS' REVENGE
SYSTEM: ATARI 2600
YEAR: 1982

Selling something new to the public is risky. After many months of internal planning, your product seems like the most obvious thing in the world – but nobody on the outside has a clue. Your potential customers will ask you all sorts of questions, from the curious ('What *is* this?') to the sceptical ('Why is it *here*?'), and everything else in between. Trust us when we say that if you don't have good answers to these questions, you won't get very far. In our pre-**Retro Gamer** work, we could only sit by and watch as customer-free days gave way to job losses and eventually repossessions. It's not pleasant. But if you can provide people something they already know within the new product, your burden is significantly lower – the familiar helps to push the unfamiliar.

The development of *Combat* is inextricably linked to the creation of the Atari 2600 itself. In the mid-Seventies, Atari was planning to introduce a brand-new product line. It was already doing excellent business with its arcade machines, spurred by its breakout hit, *Pong*, and had released dedicated *Pong* machines for homes to major success. Complex games were also being released in arcades too, and there was a need to bring these to the home market. Atari's goal was to bring these games into homes, but it faced a problem in doing so – it didn't have a platform for doing so.

The company had a few options. It could continue to manufacture custom hardware for each game, or design a system which connected a custom ASIC (application-specific integrated circuit) to a common set of controls, as Coleco would do with its Telstar Arcade console. The third option, which Atari considered to be out of its reach at the time, was to design a console around a microprocessor with games stored on ROM cartridges. The problem was that most processors of the time were costly – but this changed with the introduction of the 6502 from MOS Technology, which was being offered for just $5 in high-volume orders. Steve Mayer and Ron Milner designed a prototype, and by the end of 1975 Atari was looking for an engineer to finish the machine.

> **"I had learned to play Atari Tank that summer in Disneyland. I was playing with my younger brother, who beat me consistently"**
> Joe Decuir

"I was prepared because I was studying the 6502 on my own before I went looking for a new job," remembers Joe Decuir, the man that Atari hired to take the Atari 2600 – then codenamed Stella – from prototype to finished product. "I was prepared as a user because I had learned to play *Atari Tank* that summer in Disneyland. I was playing with my younger brother, who beat me consistently," he adds. Those losses would prove to be valuable experience. "After the interview at Atari, they took me to play a game or two. Realising I was about to be tested, I gravitated to *Tank*, and played a passable game. I was hired on the spot."

COMBAT 101

■ *Combat* is a military-themed competitive shooting game, in which two players compete for the highest score by shooting each other while avoiding getting hit. Gameplay takes place in tanks, biplanes and jets, and the game's rules may be modified to provide battlefield obstacles, visual obstructions and alternative missile properties.

Joe's first task was to debug the prototype machine and demonstrate its ability to play a tank game. "A tank game was an original marketing requirement for the system. The game was an acceptance test for the hardware, so it was codeveloped," he explains. It makes sense – Atari was planning to sell its new console concept with a popular arcade staple. "But it was a huge challenge. Can we do a game like this on simple cheap line-oriented hardware? We knew, from watching Moore's Law in action, that our competitors would come out with a frame buffer design." The new processor was key to this. "Atari had been pioneering arcade games. We knew that we needed a few relatively high resolution objects (players) and a low resolution background (playfield)," Joe recalls. "The 6502 was fast enough to do the job."

It seems bizarre, in hindsight, given the massive success and long life that the Atari 2600 enjoyed, but Atari was massively concerned with beating those competitors to the punch. The company estimated that if the machine succeeded at all, it would have a maximum shelf life of about three years before a new, more capable system would be needed to compete with the frame buffer-based consoles it anticipated. Speed was of the essence.

"Working for Steve Mayer and Ron Milner, I got the original prototype working at Cyan Engineering," Joe continues. "We invited Nolan Bushnell and Al Alcorn to visit. We showed them proof that the hardware worked, and they rearranged Atari to devote resources to complete the job. One of them was to hire Larry Wagner and his team." The initial job hadn't taken long – it was February of 1976, and the display technology (or Television Interface Adapter) was already functioning. Larry Wagner was put in charge of building a software library for the system, and was responsible for hiring and managing the first wave of Atari 2600 programmers. Joe was moved out to Los Gatos, California and worked under the experienced hardware designer Jay Miner. Jay would take on the ASIC design, and Joe would tackle the rest of the hardware.

But what would become of Joe's tank game? Larry joined in on that, and helped to shape it into the game we know today. "It overlapped hardware development," Joe remembers. "That started in December 1975. *Combat* was ready to ship in winter 1977. However, the duty cycle was low, because both of us had other responsibilities." It was an odd situation – one of the key requirements for the system had suddenly become a project that coexisted alongside the other priorities of the two people working on it. Joe was also working on another game, the *Pong*-based *Video Olympics*, and still working on hardware. Larry was in charge of the programmers. However, there was no way around it – the game would continue, but at a relatively slow pace.

> **"We invited Nolan Bushnell and Al Alcorn to visit. We showed them proof that the hardware worked, and they rearranged Atari to devote resources to complete the job"**
>
> Joe Decuir

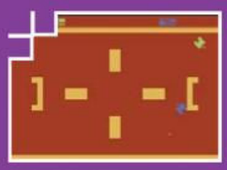
Combat soon evolved beyond a simple conversion of the arcade *Tank* game, to reflect developments from within Atari's arcade division. "They were shipping a tank game," Joe remembers. "They were also thinking about a jet game and a biplane game." Joe would incorporate these into the new Atari 2600 game. These would provide game variations for home players, and functioned differently to the tanks in practical terms. Where the tanks were slow, restricted by the screen boundaries and could use walls for cover, the planes were faster and could leave the edge of the screen to reappear on the other side. While walls wouldn't make sense, clouds could be used for cover.

What's more, the planes could also fly in squadrons. As Joe worked on the hardware, he knew that sprites had properties that could be exploited to provide game variations. The multi-plane modes made use of the fact that the 2600 was capable of cloning sprites up to three times on a horizontal line. However, it was another trick that provided one of the game's most interesting modes – biplanes versus the bomber. One player controls a formation of three biplanes that shoot together, and the other has control of an aircraft with a single large missile.

"We were thinking about how to create variations that were interesting, and provide handicaps," says Joe. "In the games with one bomber and three biplanes, the three biplanes are a different target than the bomber." This was an early example of asymmetrical design in competitive videogames, providing players with different tools to achieve the same goals – a forerunner to the kinds of choices we make today whenever we select a character in a fighting game or a car in a racing game. This wasn't the only way that players were able to affect handicaps, as the system's difficulty switches were used in *Combat* too. If handicapped, a player's tank will be slower to turn and have a shorter firing range.

Speaking of symmetry, you may have wondered why the game's stages are symmetrical – mazes mirrored from left to right, and likewise two clouds in the aerial combat stages. The answer lies in the design of the hardware. The console produces a playfield in which the right side if a mirrored duplicate of the left. That too was Joe's work. "I developed the engine, including the tanks, jets and biplanes, and the weird modes (e.g. 3:1)."

And what of codeveloper Larry Wagner? "Larry inherited the basic design, and added a lot of features and modes," Joe explains. These ensured the longevity of the game in the home market, as the final cartridge had a total of 27 game variations to try. Every player will have had a favourite, and some proved to be particularly interesting in design terms.



IN THE KNOW

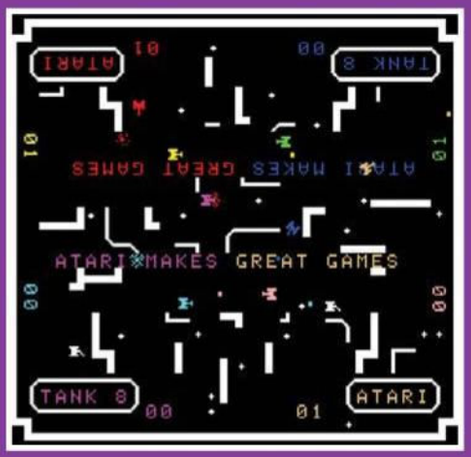
- **» PUBLISHER:** Atari Inc
- **» DEVELOPER:** Atari Inc
- **» RELEASED:** 1977
- **» PLATFORM:** Atari 2600
- **» PLATFORM:** Shoot-'em-up

» Invisible Tank mode allows you to do some pretty stealthy stuff, unless you're terrible and bump into walls a lot.

» You can hide in the clouds for temporary cover, remember that your plane is constantly moving forward, though.

MODERN COMBAT

Tank games have been popular for 40 years – here are some with a multiplayer focus…



TANK 8

1976

The successor to the game that inspired *Combat* was geared towards total carnage, supporting up to eight players. Like the original *Tank*, it was released by the Atari subsidiary Kee Games, and it improved on its predecessor with full-colour graphics to differentiate between each of the eight players.

ARMOR AMBUSH

1982

M-Network's tank battle game was an Atari 2600 conversion of the Intellivision game *Armor Battle*, and provided an advanced take on the theme for players who had mastered *Combat*. New ground surfaces affected tank handling and visibility.

TOKYO WARS

1996

After years of single-player arcade tank games that followed in the wake of *Battlezone*, Namco's blaster utilised networked cabinets to bring multiplayer tank battles back to the arcade. *Tokyo Wars* allowed up to eight players to compete in team battles.

ALIEN FRONT ONLINE

2001

Sega's sci-fi tank battler pitted humans against aliens across the world with Earthlings using conventional tanks and aliens using walkers. For the first time on console, players could compete over the internet thanks to the Dreamcast's built-in modem.

WORLD OF TANKS

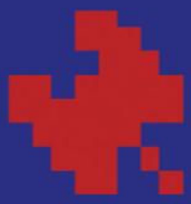
2010

The tank battles of the 20th Century provide the inspiration for *World Of Tanks*, which features hundreds of real-world models from World War I to the early Sixties. This game is one of the most popular on the planet right now due to its free-to-play model, making a fortune for its publisher.

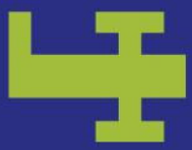
MIX AND MATCH

Combat has 27 game modes – here are the features that show up in each of them…

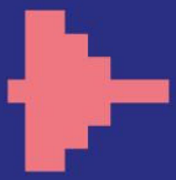
» Each pair of planes is controlled by one player, and flies in formation.



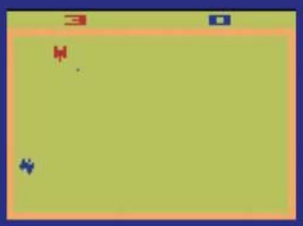
TANKS
MODES: 1-14



BIPLANES
MODES: 15-20



JETS
MODES: 21-27



OPEN FIELD
MODES: 1, 8, 10, 13, 18-20, 23-24, 26

SIMPLE MAZE
MODES: 2-3, 6, 9, 11-12, 14

COMPLEX MAZE
MODES: 4-5, 7

CLOUDS
MODES: 15-17, 21-22, 25

INVISIBILITY
MODES: 10-14

REBOUNDING MISSILES
MODES: 6-9, 12-14

STRAIGHT MISSILES
MODES: 3, 5, 16, 20, 22, 24, 27

GUIDED MISSILES
MODES: 1-2, 4, 10-11, 15, 19, 21, 23, 25-26

MACHINE GUN
MODES: 17-18

TWO LATE

How Combat's sequel managed to disappear for over a decade...

Neither Joe nor Larry were involved in the production of *Combat Two*, which was developed by General Computer Corporation in 1982. This sequel stripped back the number of options available, removing the likes of invisible tanks, biplanes and jets, instead focusing on making the main tank game more complex and interesting by adding a variety of new mechanics. Instead of the maze-like arenas of the original game, *Combat Two* offered a realistic battlefield featuring a forest or walls to provide cover, a river and bridges to cross it. Each player could also access missile bases, which gave access to a supply of homing missiles. Instead of a score-based game, both players had three lives and a supply of armour. As before, the game was multiplayer-only.

Combat Two didn't make it to production during the lifetime of the Atari 2600. The game ran into the North American video game crash of 1983 and wound up cancelled, with its part number reassigned to *Road Runner*. The game didn't end up being manufactured on cartridge until 2001, when a run of copies was created for sale at the Classic Gaming Expo. The game finally got an release in 2005 when it was included on the Atari Flashback 2 console, ending over two decades without an official release.

One of Larry's new modes, Tank Pong, took the basic game and added bouncing missiles by using the knowledge of bouncing projectiles gained from *Pong*. With the basic maze structure in place, players could perform trick shots that allowed hits from locations that would be impossible in the regular game by firing around corners. In fact, some variations absolutely required this – missiles were harmless unless first armed by being bounced off a wall.

Another interesting mode was Invisible Tank. To add extra depth to the game, both players would be concealed at all times except for when firing or hitting a wall. A hit would register whether the opponent was visible or not. This allowed for stealth attacks, with players creeping up on the suspected location of their opponent – if both were restrained with their shots, it could be a very tense experience that relied as much on navigational skill as ability. In some ways, it was both a way of working around the limitations of a top-down view and a precursor to the stealth-based games of today – after all, you could hear a tank firing from behind a wall, but you might not necessarily see it.

> **"The early tank variations were fun for me, because the missiles were steerable after you made the shot"**
>
> Joe Decuir

Other game variations included guided and unguided missiles (as well as machine guns for the biplanes), fast and slow modes, and different maze layouts. 14 of the game's 27 variations were tank-based, with the remaining 13 comprised of biplane and jet games. We were rather curious to know which of these Joe preferred. "The early tank variations were fun for me, because the missiles were steerable after you made the shot," he notes. This ability to curve your shots was key to making even the open-field mode enjoyable – without any cover, it's key for players to avoid straying into the direct line of fire while steering their own missiles into opponents.

Of course, the final key component of *Combat* was an opponent. As was common at the time, *Combat* was a multiplayer-only game. Apart from being a key part of the arcade game design, this was necessitated by the technological limitations that the developers had to work with. "We had 2K of ROM," notes Joe. "The interesting problem would be: what does the machine player do? I did put a single player *Pong* variant in *Video Olympics*. The simple intelligence: the machine moves up or down to meet the ball, but at a limited speed. To beat it, the live player has to bounce the ball off a wall so that the ball changes direction and moves up or down faster than the machine player can track. The algorithm is very simple." *Combat* was a lot more complex than *Pong* – the computer player would have to track the player, have instructions on how to move towards them, and know when to fire, as well as having imperfections in order to ensure that the challenge was fun. Cramming all of that into 2,048 bytes would have been too much.

When *Combat* was finished, it was designated as the pack-in game for Atari 2600 consoles. It was a perfect fit – the concept was familiar and thus easy to grasp, whether you'd played the arcade game or not. The console had the product number CX2600, and as its first game *Combat* was CX2601. For Sears, which was marketing the system under the Telegames label, the game was renamed *Tank Plus* (alluding to the arcade game) but wasn't included in the main package – *Video Olympics*, Joe's other game, was included instead as Pong Sports. However, with the majority of consoles being sold under the Atari brand, *Combat* became one of the most commonly-found cartridges for the console. The game would remain packaged with the system for five years, eventually being usurped in 1982 by *Pac-Man*, meaning that millions of cartridges will have made their way into the hands of gamers.

For Joe, Larry and Atari, *Combat* had been a successful endeavour – the Atari 2600 was out in the wild and *Combat* was exactly what the machine needed to accompany it. The game communicated the fact that the system was capable of more than just *Pong*, and could provide home versions of arcade hits. The system sold 250,000 units in 1977, and would eventually go on to sell 30 million units by the time production stopped in the late Eighties. That's certainly not a bad run for a machine that was only meant to last three years, and *Combat* was a key part of making that happen.

But if the game itself was a victory, defeat was not far behind. "At Christmas 1977, I bought a 2600 myself and brought it home to my family," Joe recalls in closing. "I had contributed to the system design and the *Combat* cartridge. However, my younger brother was still a better player."

INSIDE THE COMMODO

The C64 was born to play games. Albert Charpentier and Yash Terakura tell Rory Milne how custom chips intended for a killer games console instead powered the world's bestselling computer

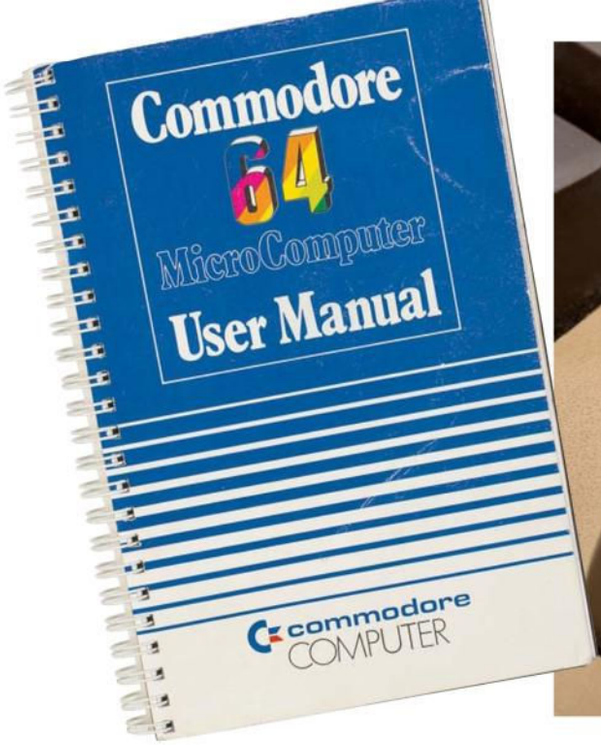
RE 64

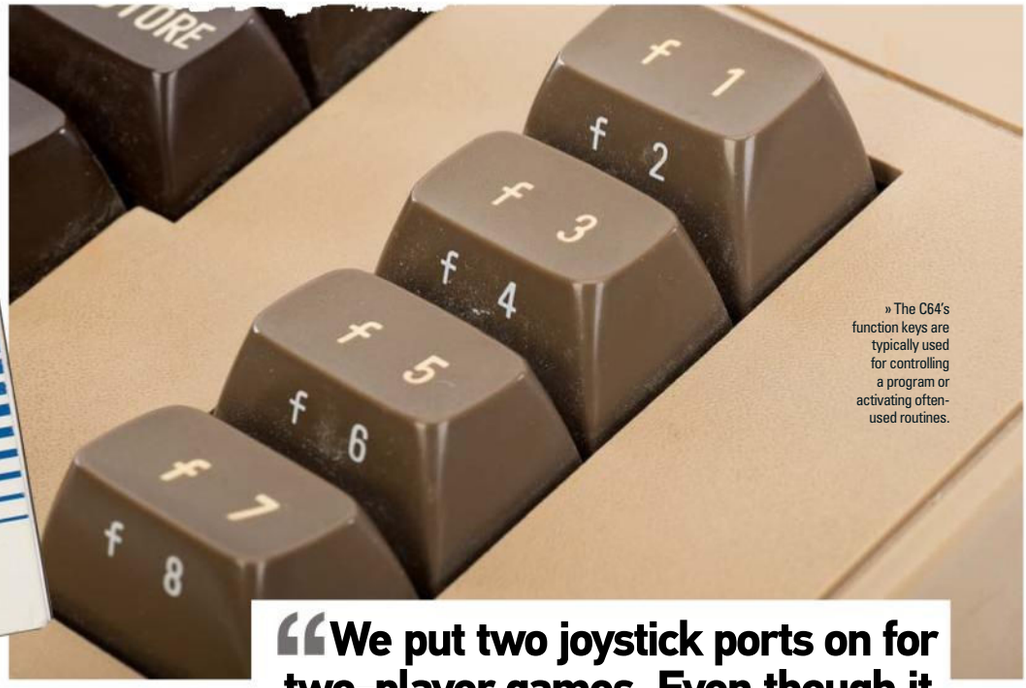
» The controller ports on the Commodore 64 accept both joysticks and mice.

» This port allows you to place cartridges in your Commodore 64, such as the Final Cartridge III.

The story of the C64 is fundamentally one of two innovative chips created in 1981 at the Pennsylvania-based Commodore subsidiary, MOS Technology. But the system's success was secured by a third chip and a leap of faith on falling memory prices. And the machine's dominance was ensured by Commodore boss Jack Tramiel obsessing over its cost and insisting on a quality keyboard sourced through his Japanese operation.

The Commodore 64's well-received predecessor, the VIC-20, had been delivered thanks to a similar balancing of cost and quality. MOS engineering manager Albert Charpentier was responsible for designing the VIC-20's video chip, which had first been pitched to console manufacturers. Albert's plan was to have another crack at the console market with a better graphics chip. "The VIC chip was done so I started to work on the VIC-II chip," Albert begins. "The original premise of the chip was: 'Ok, the VIC was good, but it wasn't good enough to entice the game community to buy into it.' We looked at different arcade games from Taito, Konami and Atari. We looked at the features those games had so that at least we would be able to imitate arcade graphics with the VIC-II. Processors back then weren't as capable as they are today. It was a struggle to smoothly move things across the screen so that's where we put in what we called the 'sprite concept' so you could simply define the character, put in an X and Y coordinate and it would appear wherever you wanted it. So it really supported the processor so that you could smoothly move objects around the screen." ▶





» The C64's function keys are typically used for controlling a program or activating often-used routines.

As Albert devised his custom graphics chip, MOS engineer Bob Yannes developed a complementary sound chip, the 'SID', which was inspired by synthesiser keyboards rather than computer audio chips. "Bob was really fascinated with music – his passion was audio. The VIC had some audio capability, but it was very minimal. Bob said: 'Why don't we make a full three or four voice chip that has all the fundamentals of a synthesiser keyboard?' So we essentially copied a lot of the things that were done in those keyboards; we didn't look at audio chips from our competitors," says Albert.

But Albert and Bob still needed to get the go-ahead from Jack Tramiel to develop their respective chips, which they secured with the support of Charles Winterble. "Charles Winterble was a product engineer who was hired to get a better [chip] yield, we worked pretty closely together," continues Albert. "Charlie, Bob and myself presented the VIC-II and SID concept to Jack, [we said]: 'This is the next generation.' Our pitch was a really good games console. Jack said: 'Go ahead and work with the two chips. We will see what happens.'"

> **"We put two joystick ports on for two-player games. Even though it was a computer I still wanted it to be a good games machine!"**
> Albert Charpentier

Just months later, however, impressive sales of the VIC-20 saw the pair switch from games console design to home computer development. "Within six months, everyone saw it was going to be a computer. It was clear that the VIC-20 was a wonderful success – it sold, I think, close to a million units. So we said: 'Rather than doing a game console lets make this a better VIC-20.' So it would have better features. We looked at the whole memory management issue and things like that to make a more effective computer. The graphics were still a key part; it was going to be a home computer so it had to have entertainment features."

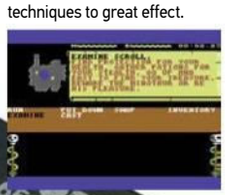
The sound chip that Bob Yannes was working on was just as important to the entertainment credentials of the VIC-20's successor – although its advanced nature was causing a few headaches. "It was the first time something like that had been done on a chip", explains Albert. "It was really hard to get filters and frequencies, and try to create a true synthesiser. It was going to be a four-voice synthesiser, but the chip was too big and we had to cut it down to three."

Thanks to Jack Tramiel's keen eye for market trends, Albert next found himself reworking a variant of the 6502 processor used in the VIC-20 so that its successor could handle more memory. "Jack would come in once a month and we'd give him a report. 64K RAM chips were just becoming available, and Jack said: 'Listen, put 64K into it. Everyone is going to be producing that RAM, it's

SID MAESTROS The six musicians who made the C64 sing

ROB HUBBARD
MEMORABLE GAME: Master Of Magic

■ At times, the arrangements of Rob Hubbard's SID compositions make them sound almost orchestral, although quite how this is possible given just three synthesiser voices to work with remains a mystery. Rob's *Master Of Magic* score spans multiple musical styles and techniques to great effect.



BEN DAGLISH
MEMORABLE GAME: The Last Ninja

■ Preferring to freelance rather than work in-house, Ben Daglish was nothing if not prolific during his C64 days. Ben produced over a hundred SID tunes, which typically get described as 'feel-good', but his often-understated work on *The Last Ninja* proves this to be something of a generalisation.

MARTIN GALWAY
MEMORABLE GAME: Wizball

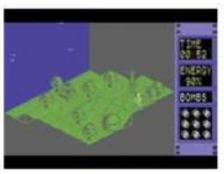
■ Likely remembered as much for the amazing sounds he coaxed out of the SID chip as for his compositions, there's no doubting that Martin Galway made the C64 sing. Martin's *Wizball* title tune sees the C64 rock out to the synthesised strains of a weeping guitar with keyboard accompaniment.

JONATHAN DUNN
MEMORABLE GAME: Platoon

■ A late arrival to the professional SID music scene, Jonathan Dunn took over from Martin Galway when he left Ocean Software in 1987. Jonathan's first gig at Ocean was side-scroller *Platoon*, for which he created a memorably atmospheric title tune. His body of work has a distinctive, clean sound.

DAVE WHITTAKER
MEMORABLE GAME: Glider Rider

■ Perhaps the busiest of all SID musicians; Dave has gone on record to say that he has wrote tunes for over 400 C64 games. Dave's SID tunes have a uniquely 'electronic' sound reminiscent of the music that pervaded the pop charts of the Eighties and typified by his upbeat *Glider Rider* title music.



MATT GRAY
MEMORABLE GAME: Last Ninja 2

■ Like Jonathan Dunn, Matt Gray arrived late to the SID tune party in 1987, but he made up for lost time with epic compositions for the likes of *Driller*. An exclusive contract with System 3 and arguably Matt's finest SID work followed with his *Last Ninja 2* soundtrack. Matt is working on remastering his work.

INSIDE THE COMMODORE 64 The low-down on the C64's key components

CASSETTE PORT

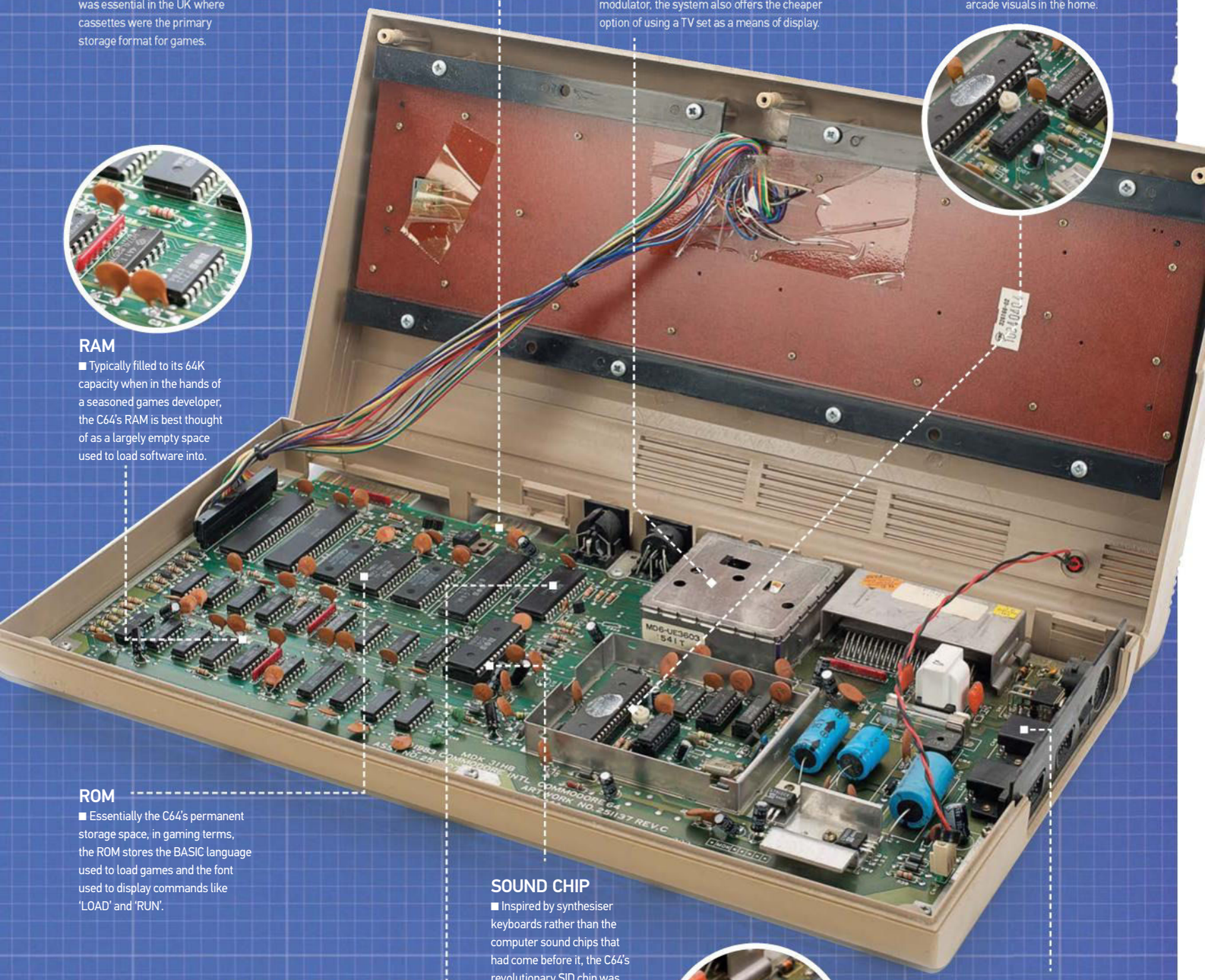
■ Slightly redundant in the US where the preference was for disk drives, the C64's cassette port was essential in the UK where cassettes were the primary storage format for games.

RF MODULATOR

■ Although the C64 has a video port that supports compatible monitors, thanks to its RF modulator, the system also offers the cheaper option of using a TV set as a means of display.

VIDEO CHIP

■ The multi-coloured sprites that define C64 gaming are produced and managed by the VIC-II. Albert Charpentier designed this custom graphics chip to emulate arcade visuals in the home.



RAM

■ Typically filled to its 64K capacity when in the hands of a seasoned games developer, the C64's RAM is best thought of as a largely empty space used to load software into.

ROM

■ Essentially the C64's permanent storage space, in gaming terms, the ROM stores the BASIC language used to load games and the font used to display commands like 'LOAD' and 'RUN'.

CPU

■ The 6510 CPU puts the '64' in C64. Unlike the Spectrum or BBC's CPUs, the 6510 can manage 64K of RAM by disabling access to BASIC and everything else stored in the C64's ROM.

SOUND CHIP

■ Inspired by synthesiser keyboards rather than the computer sound chips that had come before it, the C64's revolutionary SID chip was given three 'voices' by its creator Bob Yannes.

CONTROL PORTS

■ Technically for all sorts of peripherals, the C64's twin control ports were designed for two joysticks and the two-player gaming that would allow. The ports also support mice and paddles.

» Albert is currently involved in developing electronic devices for the renewable energy market.

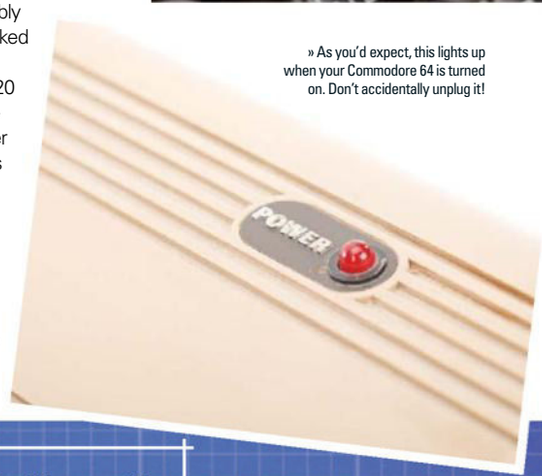
» The AV Jack is on the left, while the serial port on the right handles devices such as printers and disk drives.

▶ going to get very cheap and it would be a great marketing position.' The 6502 could only address 64K, and that had to be ROM, RAM, video stuff and so forth. So that started the design of the 6510 where you could bank-switch pieces of memory around [to] access the hidden 32K of RAM underneath the ROM."

Of course, three custom chips and 64K of RAM don't make a computer, and so Albert started on a circuit board to accommodate these and other components. As more engineers joined the project, their prototype became known as the VIC-40. "It was the VIC-40 initially because the VIC-20 had 20 characters on the screen versus the VIC-40 which was going to have 40 characters, " Albert continues. "The VIC-II chip was done, but Bob was still working on the SID. So I started working on the PCB and getting the schematics and everything ready for that. When Bob finished up the SID he started working with Bob Russell to put together the final touches on the architecture and work up the software. Dave Ziembicki was the technician. Bob Russell basically took the VIC-20 software and remade it for the VIC-40. We put the two joystick ports on for two-player games. I loved games – so even though it was going to be a computer I still wanted it to be a good games machine!"

Good progress was being made, but a decision by Jack Tramiel in late-1981 would see Albert and his engineers working around the clock to finish the VIC-40 by the New Year. "Jack really wanted us to have something at the January CES in 1982. We worked like maniacs. The SID chip was a little bit behind schedule, but Bob Yannes was killing it and Bob Russell was trying to get the software done. Marketing did not learn about the VIC-40 until probably November. I think Jack was worried that they would get excited about this new product and not focus on selling the old stuff. I got the first silicon right before Christmas and then I found a bug in the video chip that wouldn't allow the sprites to smoothly move over the background. They had to redo the masks and run the entire chip through the process in the [chip] fab downstairs. They did that over the Christmas vacation. They got us the chip around the first of the year. We carved up a VIC-20 case to fit everything in and painted it up – it was insane!"

By the January 1982 CES, the VIC-40's name had changed and Jack Tramiel had received a demonstration of the 'C64' and approved its presentation at the show. "I think that Jack understood that if the presentation was mediocre you would never be able to win back that excitement. If the demonstration software wasn't right he would have probably pulled it from the show. I liked the name change since it distanced it from the VIC-20 – the C64 was going to be so far superior. I remember that CES very well – it was a whirlwind! We were introducing this product that we had just spent 18 months developing, and it was just fantastic. We showed two things. I remember one side of the booth was showing the C64 doing computer-like



» As you'd expect, this lights up when your Commodore 64 is turned on. Don't accidentally unplug it!

C64 COMPARISON CHART

The key stats of the C64 and its UK competition

	C64	Spectrum 48K	BBC Micro	Amstrad CPC
UK Launch Date	September 1982	April 1982	December 1981	June 1984
UK Launch Price	£350	£175	£335	£249 (with green screen monitor)
Processor	6510 @ 0.985 MHz	Z80A @ 3.5 MHz	6502 @ 2 MHz	Z80A @ 4 MHz
RAM	64 KB	48 KB	32 KB	64 KB
Display modes	320x200, 160x200	256x192	160x256, 320x200, 320x256, 480x500, 640x200, 640x256	160x200, 320x200, 640x200
Colours	16	8	8	16
Sound	3-channel synthesiser	Internal speaker	3-channel sound chip	4-channel sound chip
Keyboard	Typewriter	Membrane	Typewriter	Typewriter
Joystick Ports	2	0	2	1

» The Commodore 64's keyboard is pleasingly chunky and very sturdy. Ours still works today.

» Numerous games and applications were released for the Commodore's disk drive peripheral.

"There was a lot of pressure to get [the C64] out because clearly the VIC-20 stopped selling once people knew that it was coming"

Albert Charpentier

stuff and the other side of the booth had a couple of C64s doing games stuff. I remember that it was being described as: 'A computer that can play great games.' When Jack saw the level of excitement that's when he went: 'Ok, we're going full-board for this thing.'"

Following the CES, Albert's small team became the nucleus of an industrious company-wide effort to get the C64 into production. "Basically the team was expanded, we got a lot of help from the manufacturing team in Santa Clara. Yash Terakura was very important in that role. He was moving [the C64] out of the lab – out of the prototype – and getting it into manufacturing in Japan. Charlie Winterble was running with our designs and working with the rest of the company so that we could manufacture it. Charlie was essentially a project manager for the whole thing. Commodore had a PCB line in Santa Clara where the C64s were built initially. I stayed up there for a few weeks while they brought it up and started making it in volume. Bob Yannes was with me on that as well. Bob Russell was responsible for migrating the software from the VIC-20 over to the C64. Details all had to be worked out now that we weren't just building one of them, we had to build a million of them."

» An essential device for anyone that loves playing games.

As part of its production process, the C64 received a distinctive brown case, which Albert remembers as being the most expedient design choice. "Yash Terakura took my PC board – that went right into manufacturing. Yash was involved in putting it in the case. Yash did work at the periphery during the PCB development, but his job was mainly to get the whole thing moving into Japan because the higher volume manufacturing of cases was all in Japan. The VIC-II video chip got pretty hot, so when we put it in we had a little foot that came down and that touched on the chip – this would act as a heat sink. That became part of the FCC shield. The only case that was available that we could actually use was the VIC-20 case, so we modified that. We had to go quickly, and it was available and the right size. We essentially gutted the inside, but the outside was pretty much the same."

The Japanese-born, US-educated Yash Terakura has memories of working on the C64 in both countries – first with Albert's team and then managing production of the C64's case and keyboard in the Far East. "I moved to the US to help finish the final production model C64. I helped lay out the PCB, locate and approve parts, and do testing. I was handling all aspects of C64 engineering between the US and Japan. The housing was made based on the production PCB. The mould was the same as the VIC-20 – just with a simple colour change – and it was done in Hong Kong, but the injection was done in Japan. I did work with a design engineer in Japan, Mr. Nishimura, on details such as ventilation and the locations of the input/output ports. Mitsumi was the [keyboard] supplier; we used the [VIC-20] keyboard."

Although he didn't have a hands-on role in the production of the C64, Jack Tramiel did manage its costs and curbed Albert's desire for more expensive parts. "I remember working with [Jack]; he'd come in every two weeks or so and we'd go over the bill," recalls Albert. "It was always a fight because I wanted to put a better quality something in. He went through every penny on that bill. He was figuring on making millions, and I remember him saying to me: 'It's a million pennies, if you don't want a million pennies I'll take [them]!'"

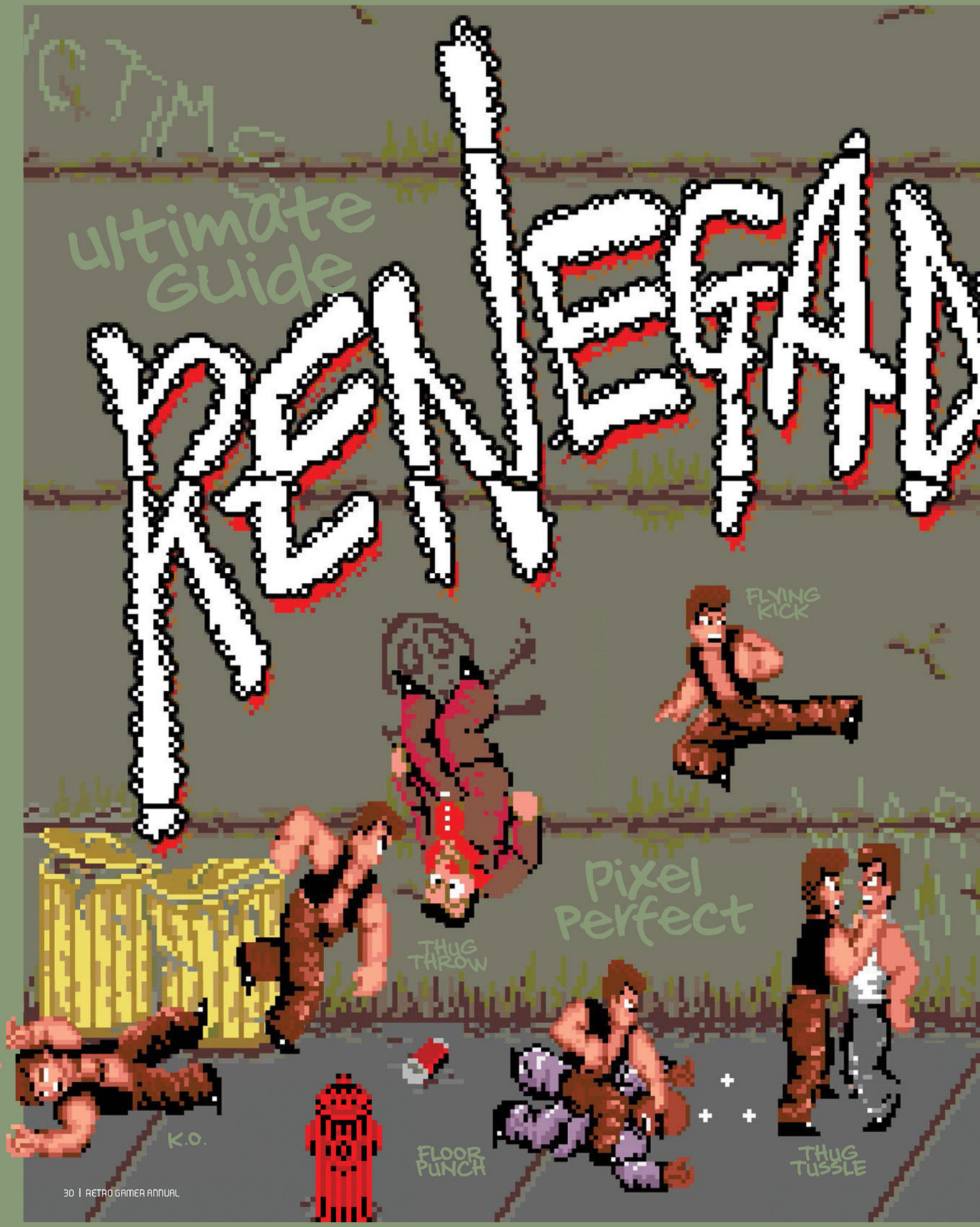
In keeping with Jack's cost-conscious approach was a fateful marketing decision that forced Albert to pair the C64 with an slow disk drive. "[Marketing] decided to use the VIC-20 disk drive. [There was] a whole warehouse full and they were slower than hell! Right towards the end, we were forced to put on an interface for these drives so that they could sell them off. We wanted a higher speed drive but got shot down on that one."

Albert's recollections of the final stages of the C64's production are of the pressure to get the system released and the elation that followed. "There was a lot of pressure to get it out because clearly the VIC-20 stopped selling once people knew that it was coming. But we had a lot more resources by then so it was just that everything had to come together. I think the C64 finally got into production in May [1982.] I felt wonderful! I mean, you spend a couple of years of your life bringing something together that you dreamed about that has finally reached a point of reality – and people liked it!"

When asked to look back at the C64, Yash Terakura offers a succinct and humble analysis of the system. "The design was pretty much limited to the availability of electronic parts; we had to design with what we had and we had to make it cheap. It was fun designing a computer in the old days. I can safely say that I did my best at that time."

Albert Charpentier's final words on the C64 are to give credit to the late, and great, Jack Tramiel and reflect on the millions that the system defined home computing for. "Jack Tramiel simply gave us free reign to do whatever we needed to do, and we executed. I give Jack a lot of credit; he gave us that target price, which we had to hit. It was him who had the guts to say 64K. He felt he could still hit the price point that we needed to hit, which is obviously why we were fighting over pennies every day. The C64 just took the world by storm at that price. I really feel that it introduced so many people to computers that may not otherwise have been introduced to them as quickly as they were."

Thanks to Albert and Yash for telling the story of the C64.

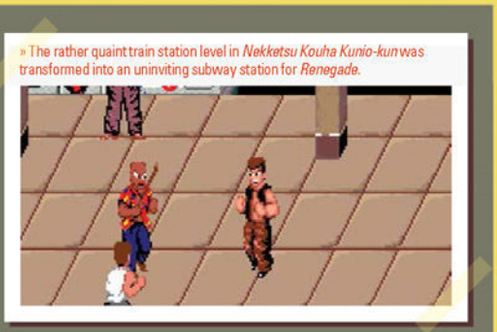

Ultimate Guide
Renegade
Pixel Perfect
FLYING KICK
THUG THROW
K.O.
FLOOR PUNCH
THUG TUSSLE

When it comes to arcade brawlers Renegade was the original heavyweight in the field. Martyn Carroll keeps his head down as he revisits the game's grimy underworld in search of truth and street justice.

There are few types of game more satisfying than vigilante-themed beat-'em-ups. You know the score: no-good gangs have taken over the city and the streets are no longer safe. When they're not busy tagging walls and driving down property values, gang members are provoking good people by targeting their loved-ones. The fools! Classic games like *Double Dragon*, *Final Fight* and *Streets Of Rage* have shown exactly what happens when you rattle citizens in possession of above-average martial arts skills.

Renegade was the first game to really popularise the street justice theme. You played a nameless hero – the 'Renegade' of the title – who had to fight his way through four seedy stages, defeating the gangs in each. Once you'd defeated the final boss your girlfriend would emerge, presumably from capture – the game didn't state that she'd been kidnapped but that was the implication, the gangs were there to be wasted regardless.

It's well-known that *Renegade* was a reskin of the 1986 game *Nekketsu Kouha Kunio-kun*, the first of Technos' long-running *Kunio-kun* series. The Japanese original saw you defending your brother from menacing school bullies and low-level gang members. To better appeal to the Western audience Technos restyled many of the game's graphics to give it a harder, sleazier edge. For his inspiration the game's director Yoshihisa Kishimoto studied the cult 1979 American film *The Warriors* – and he found pretty much everything he needed in the opening credits sequence where the



» The rather quaint train station level in *Nekketsu Kouha Kunio-kun* was transformed into an uninviting subway station for *Renegade*.

» It's best to dismount bikers using a flying kick, although if you're feeling cocky you can do it with a running punch and even a back kick.

» When finishing off an enemy just make sure no-one comes to their aid!

» Every fighting game has a powerful move you can spam and in *Renegade* it's the lethal back kick.

various gangs travel on the NYC subway to a gathering in the Bronx.

The hero's aikido gear was swapped for a black waistcoat, effectively making him one of the Warriors from the film, and the pleasant train station from the Japanese version's opening stage became a graffiti-strewn subway. The enemies, meanwhile, became ruthless gang members wearing distinctive 'colours'. These changes were epitomised in the alley stage where conservatively-dressed ladies, who'd whack you around the head with their handbags were replaced, by neon-haired ravers wearing low-cut tops and swinging spikey balls! Can you dig it?

Thankfully Technos chose not to make any changes to the progressive fighting gameplay. Each stage was typically populated by six thugs and their boss, who'd come into play when you'd thinned out their gang. To defeat them you had nine brutal moves at your disposal, ranging from punches and kicks to shoulder throws and groin attacks. Control was provided by an eight-way joystick and three buttons – jump, left attack and right attack. Having the moves change depending on which way you were facing was an interesting decision and took some getting used to.

Being able to move freely around the stage and having such an expansive move list was a big deal at the time and the game paved the way for Technos' next title, the worldwide smash *Double Dragon*. That's not to say *Renegade* was superseded however. *Double Dragon* may have added the genre staples of larger stages, usable weapons and coin-op play, but *Renegade* retained some of its own unique charms. The fact that each stage was like an arena meant that you could move strategically around and pick your battles. In addition to this, the run move added a wrestling element as you could dash from one side of the 'ring' to the other, toppling enemies like skittles.

Boss Rush

The four thugs who stand in your way – and how to remove them

SUBWAY BOSS

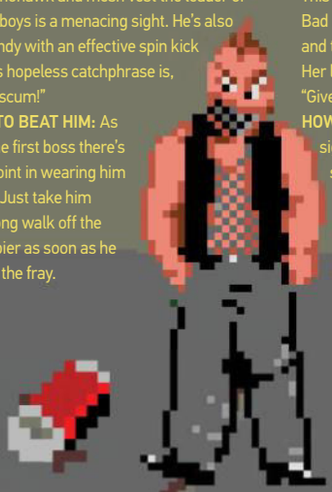
Thanks to his waistcoat and headband, the first boss is one of the game's most stylish adversaries – in the Seventies, at least. His clichéd catchphrase is, "Get lost punk!"

HOW TO BEAT HIM: Don't get too close or else he'll grab you. Instead, lure him to the edge of the platform and stun him with a back kick before flinging him to his doom.

PIER BOSS

With his mohawk and mesh vest the leader of the biker boys is a menacing sight. He's also pretty handy with an effective spin kick move. His hopeless catchphrase is, "Beat it scum!"

HOW TO BEAT HIM: As with the first boss there's little point in wearing him down. Just take him for a long walk off the short pier as soon as he enters the fray.



ALLEY BOSS

This back alley madam was christened 'Big Bad Bertha' in Ocean's home versions and that name suits her perfectly. Her laughable catchphrase is, "Given up already?"

HOW TO BEAT HER: Bertha's signature move is a dash so hit her with a jump kick as she runs at you. A back kick is even better as she can't evade that.

FINAL BOSS

Mr Big Boss deserves a beat down for bringing a gun to a fist fight. He has no catchphrase, preferring to let his pistol do the talking. You must defeat him to get to your girl.

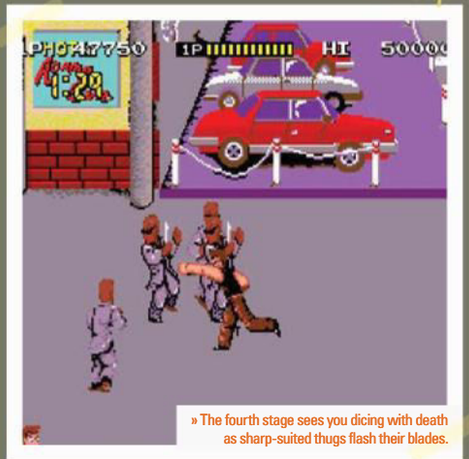
HOW TO BEAT HIM: Take out his henchman using running punches, then keep moving up to avoid his fire. Use punches and the occasional knee when he's in range.

» The final boss is a tense encounter as there's not much room to evade his gunfire.

***Renegade* debuted in arcades in late 1986 and was published by Taito. Ocean Software had already forged a** relationship with Taito, acquiring the licenses to *The Legend Of Kage*, *Arkanoid* and *Slap Fight*, so home computer versions of *Renegade* were predictable additions to the firm's slate. The game was an easy sell thanks to its violent premise, with the press revelling over the wince-making move list. "*Renegade* is so violent it makes *Rambo* look like Adrian Mole," yakked *Sinclair User*. A memorable Bob Wakelin illustration, showing *Renegade*'s hero with his foot wedged in a thug's windpipe, ensured that the game's advertising hit home.

Ocean's initial 8-bit versions for the Spectrum, Amstrad CPC and Commodore 64 were generally excellent, even if the original's three fire buttons caused a few conversion headaches. The Z80 versions in particular were highly praised and these days it's generally held that they match and perhaps even surpass the gameplay of the coin-op. The later versions for Atari ST and Amiga looked closer to the coin-op but played much worse than the 8-bit releases.

The NES version deserves special mention because, in typical fashion, it added a few unique twists to the game. The opening subway brawl, for instance, continued inside the train and then spilt out onto another platform. Later on it featured a motorbike chase where you had to kick rivals off their bikes! The Apple II and Sega Master System versions were both based on the NES game – see the Conversion Capers box out for a round-up of every home version.



» The fourth stage sees you dicing with death as sharp-suited thugs flash their blades.

STREET SCENE

The brief story behind Your Sinclair's Renegade review art

The Spectrum version of *Renegade* received the coveted 'Megagame' award in the October 1987 issue of *Your Sinclair*, and the review was accompanied by a illustration depicting various scenes from the game. The artist's name was Paul Shorrock. "It was one of my very early works," he says. "I am still working as a freelance illustrator. I don't have the artwork any longer. It's not something I hung on my wall. In fact, I'm not even sure that the client returned the artwork." Paul reveals that he didn't own a Spectrum and never even saw the game in action. "It wasn't necessary for me to see it to illustrate the storyline. I obviously had a bit of fun with it – I've just spotted a silhouette I'm surprised I got away with! It was done with black ink on orange paper and coloured with coloured pencils. I've just consulted my archives and can tell you I was paid the princely sum of £220 pounds for it…"

"To better appeal to western tastes Technos restyled many of the graphics to give it a harder, sleazier edge"

HOME SEQUELS

The further adventures of Renegade, courtesy of Ocean Software

TARGET; RENEGADE

■ Technos had no direct involvement, and it was only released on home systems, but this follow-up is well regarded by fans. Adding a partner to fight alongside Renegade was an obvious move but it paid off brilliantly. Mike Lamb's versions for the Spectrum and CPC (pictured) are standout releases for their respective systems.

RENEGADE III

■ You have to hand it to Ocean for trying something different with the third game, but adding a time-travel plot and platforming elements while taking away co-op and weapons (the things that made the second game so appealing) was a misjudged move. The Spectrum version (pictured) was the worst of a bad lot.

CONVERSION CAPERS

Which of the home versions packed the biggest punch?

COMMODORE 64 ▲

The C64 release looks great and features the smoothest scrolling of any of the home versions. The downside of this is that no more than three enemies are ever on screen at one time. The controls are also an issue, using three attack keys, which makes it fiddly to play using a joystick. It's worth persevering with, though.

AMSTRAD CPC ▲

Similar to the C64 version, the game replicates the coin-op's fighting system with three attack keys. Get used to that and you have a very good version that plays as well as it looks. And if you've ever wondered why downed enemies spill blue blood, then see the Q&A with the game's artist, Mark K. Jones.

APPLE II ◄

The coin-op and the Apple II both share a 6502 processor but this was still an overly ambitious conversion that ultimately failed. It's actually based on the NES version so there are some surprises in store for determined types. A version for the more capable Apple IIGS was advertised but never released.

ATARI ST ►

This looks okay, featuring nicely miniaturised versions of the coin-op's sprites, but it plays like a dog. The biggest fight is against the game itself. The scrolling is choppy, the collision detection is iffy and the controls are barely implemented. Being thrown off that pier in stage two would be preferable to paying for this.

ZX SPECTRUM ▲

It's easy to see why Spectrum fans hold this conversion in such high regard. The graphics are great (both the sprites and backdrops), the music is excellent (especially on the 128K version) and the controls work really well, with all of the moves mapped to a single file button so it can be played solely using a joystick.

THOMSON ▲

The version for the Thomson MO/TO range of computers is a more-or-less a straight port of the classy Spectrum release, with all of the graphics carried over. This should be a good thing except that the code hasn't been well optimised so it runs really slowly. It's okay, but could have been much better with some additional work.

PC-DOS ▲

Oh no! Based on the 16-bit versions, but it looks a lot worse (16 colour VGA mode is the best on offer) and it sounds terrible too. Gameplay is about the same, which is to say awful, and the whole sluggish mess should never have been released. It was ported by Banana Development, which evidently 'slipped up'.

MASTER SYSTEM ▲

This didn't arrive until 1993 but it was definitely worth the wait. The stages are based on the NES version but the presentation is much improved throughout with better sound and graphics (including some amusing 'cutscenes'). If you're looking for a polished and fun to play home version of *Renegade* then give this a stab.

AMIGA ▲

The only thing you can say about the Amiga version is that it's neither better nor worse than the ST game. It's essentially the same, so avoid it altogether. It's believed that this was never given a full price release, instead being pushed out on the Hit Squad label several years later. But even as a budget title you'd feel fleeced.

NES ◄

Technos oversaw this version and succeeded in creating a game that was true to the coin-op while adding some neat twists to improve its longevity (although the maze of rooms at the end was a bit of a cheat). Best bit: the 'P' power-up that turns you into Super Renegade, where punches send enemies flying off the screen!

» Technos' arcade hit *Double Dragon II* reverted to the directional attack controls used in *Renegade*.

"There was very nearly a fourth Renegade game for the Game Boy"

When it comes to follow-ups there are actually three separate strands. There's the *Kunio-Kun* series, which straddles various genres, although it does feature brawlers including Famicom favourite *Downtown Nekketsu Monogatari* (aka *River City Ransom* and *Street Gangs*). Then there's *Double Dragon* of course, which began life as a direct sequel to *Renegade* before evolving into its own long-running, genre-defining series. In Europe, Ocean lost out on the *Double Dragon* licence to Melbourne House and shrewdly responded by releasing its own *Renegade* sequels on the Imagine Software label.

The first sequel, *Target; Renegade*, was aimed exclusively at the 8-bit market and arrived on the Spectrum, CPC and C64 in 1988 and the NES in 1990. The game clearly riffed on *Double Dragon* by adding weapons and co-op play to the mix, and on home computers the game was far superior to the competing *Double Dragon* conversions. Ocean then took the shine off the series with a terrible third game that jettisoned everything that was good about the first two. *Renegade III* was a cartoony mess that's best forgotten.

There was nearly a fourth *Renegade* game for the Game Boy. In 1991, Technos took its handheld *Nekketsu Kouha Kunio-kun* spin-off, which was subtitled *Bangai Rantou Hen* (*The Further Brawls*), and 'westernised' it to become *The Renegades*. The game was advertised but eventually surfaced as the Game Boy version of *Double Dragon II*. The more marketable series won through in the end.

Renegade doesn't deserve to be forgotten, and indeed it hasn't been on PlayStation 4 where it was recently added to the growing *Arcade Archives* collection. You can download the coin-op versions of *Renegade* along with the first two *Double Dragon* games – and even *Karate Champ*, Technos' one-on-one fighter from 1984. They're perfect for refreshing your fighting game history while you're waiting in a *Street Fighter V* lobby.

» The two-player follow-up proved to be another smash hit for Ocean.

DEVELOPER Q&A

Ocean artist Mark K. Jones explains how he pixelated Renegade for the Amstrad CPC

How did you get the *Renegade* job at Ocean?
After working on the C64 version of *Arkanoid* John Brandwood requested that I work with him on the Amstrad CPC, which was my favourite machine and the one I had the most experience with.

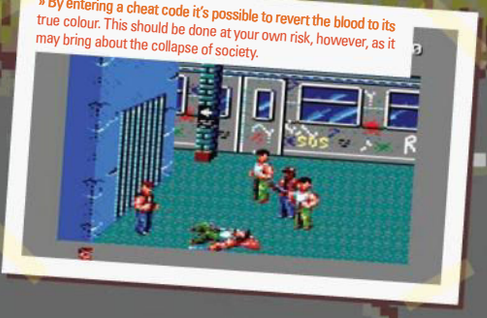
Did you have access to the *Renegade* coin-op during development?
The *Renegade* machine was just behind me in Ocean's 'Arcade Alley'. It was open to be played at any time but mostly I used the video we made of it. I liked the game, but *having* to play it kind of takes away some of the fun.

From a graphics point of view what was the biggest challenge you faced?
The resolution of the coin-op was obviously higher than the Amstrad. The challenge was in creating an art style that worked well on the Amstrad but also echoed the arcade machine's 'look'.

Did the violence in the game cause any issues?
Some. Originally we had red blood oozing from the heads of defeated opponents and in the final release we changed the blood to blue. There was always some debate with violence in games. It's rather tame to what we have now of course, but the demographic of game players has shifted to more adult players. The blood caused the biggest issue, though. Personally I've always thought it best to show the result of violence.

Were you aware of the cheat code that can be entered to turn the blood back to red?
I did know there was a cheat code, but I wasn't sure if the bosses knew it. I wouldn't be too surprised if Gary Bracey had not suggested it though!

Do you think the CPC was a good platform for graphics, and did you enjoy working on it?
John and I loved the Amstrad. It was a very capable machine in the right hands. I felt the graphics were the best of the trinity of Speccy, C64 and CPC. It didn't have the hardware oomph of the Commodore, but just on pure 'looks' I thought that the Amstrad was the best. I learned my skills on the Amstrad and I loved mine.



» By entering a cheat code it's possible to revert the blood to its true colour. This should be done at your own risk, however, as it may bring about the collapse of society.

retro GAMER READERS' CHOICE

ALL-TIME GREATEST BBC GAMES

Whilst planned as an educational machine, there were still plenty of great games on the Beeb. Darran Jones revisits some of your favourites

Meteors

PUBLISHER: Acornsoft
YEAR: 1982 **GENRE:** Shoot-'em-up

25 It would appear that you all love arcade games with a large number of coin-op clones making your list. First up is this rather excellent rendition of *Asteroids*, which features all the usual mechanics, alongside some very convincing physics. The gameplay builds nicely, with large numbers of asteroids swarming you on the later stages. The hyperspace button feels far more forgiving than the coin-op's, while the minimalist visuals keep the speed nippy.

Codename Droid

PUBLISHER: Superior Software
YEAR: 1987 **GENRE:** Run-and-gun

24 This BBC sequel really pushed the machine to its limits. It's graphically superb with bold bright visuals and smooth scrolling. The game adds greatly to the original run-and-gun, *Stryker's Run*, by adding jet packs and the ability to manipulate items. Although Nick Chamberlain was once again involved with the game, Chris Roberts wasn't. Instead programming was shared with Reflections' Martin Edmondson.

FireTrack

PUBLISHER: Electric Dreams
YEAR: 1987 **GENRE:** Shoot-'em-up

23 Nick 'Orlando' Pelling was something of a whizz when it came to the BBC Micro and you've ended up voting for three of his games. First up is Nick's impressive take on the old Tehkan coin-op *Star Force*. It's a faithful conversion and it's also a technical masterpiece, with Nick creating smooth scrolling to showcase the game (as revealed in **RG** 144). The gaudy visuals aren't for everyone, but the fast-paced blasting most certainly is.

Snapper

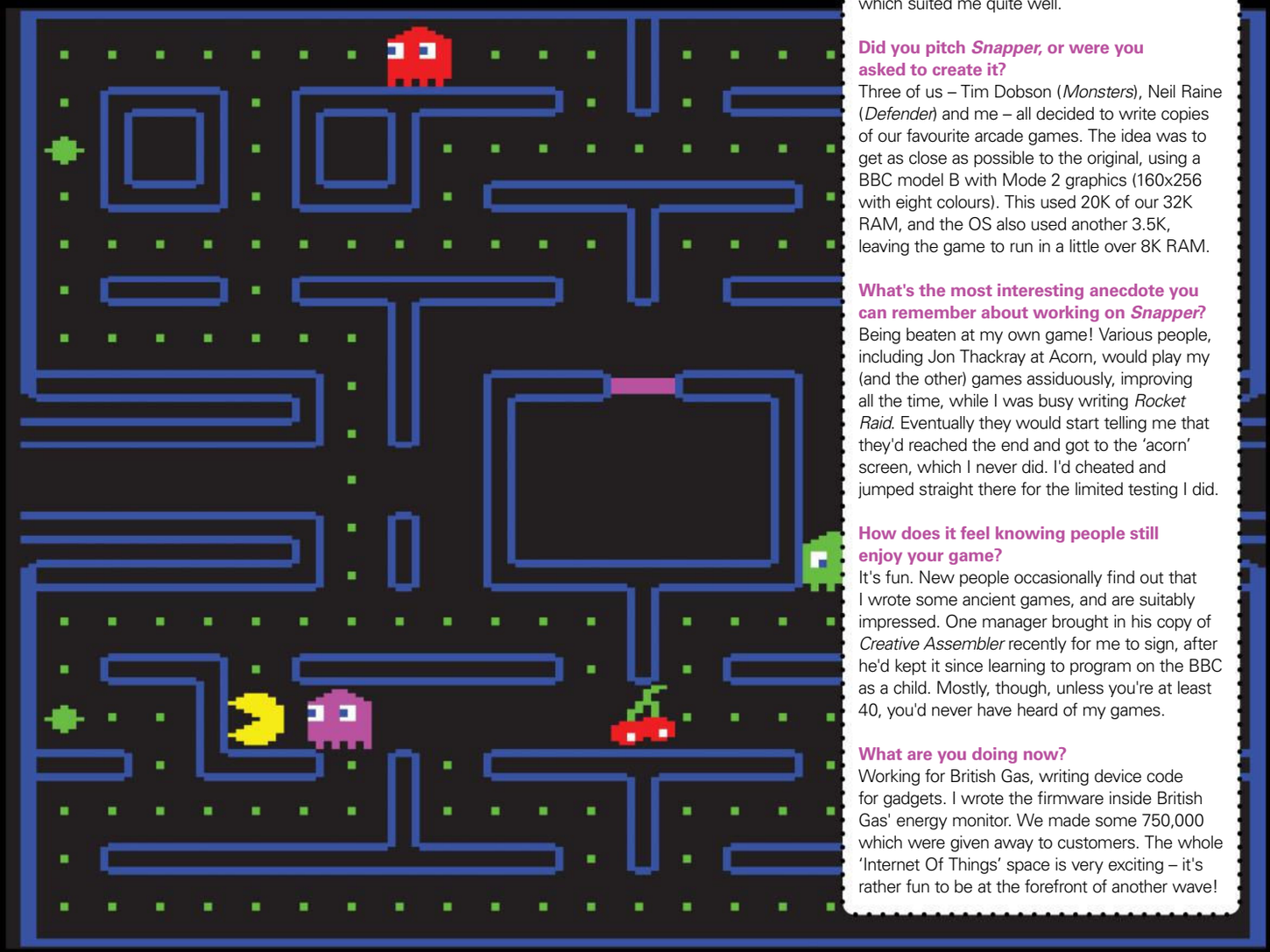
■ **PUBLISHER:** Acornsoft ■ **YEAR:** 1982 ■ **GENRE:** Maze game

22 There's an interesting story behind *Snapper* that we'll be fully revealing in a future issue with creator, Jonathan Griffiths. In the meantime, lets simply celebrate one of the finest *Pac-Man* clones to be found on any home computer. It really is that special.

One of the main reasons why *Snapper* is so much fun to play still is because it's just so darned nippy and fast-paced. Jonathan's mastery of the BBC Micro saw him coding the game in machine code, rather than BASIC, which ensured that *Snapper* ran at a blisteringly fast pace, which is very reminiscent of the arcade coin-op, in fact. It was one of the very first launch games for Acornsoft when it launched its label and became a great calling card for the company which would go on to dominate both the BBC Micro and your final list.

Initially *Snapper*'s visuals were virtually identical to the original *Pac-Man*, but the graphics had to be revisited to ensure it wasn't in direct violation of Namco's game. As a result the ghosts were changed completely and given appendages, while the titular Snapper gained a jaunty little hat and legs.

The maze layout is highly reminiscent of *Pac-man*'s, although it was altered to fit for a horizontal screen and the AI of the enemies is different – admittedly Jonathan's creations do not match up to the seemingly complex AI of the original *Pac-Man* ghosts. Despite these differences, the core gameplay between the two is incredibly similar, with BBC Micro owners receiving an excellent little maze game that played just as good as it looked. We're somewhat surprised that it's actually so far down your list, but there's no denying that the repetitive gameplay won't be to everyone's taste.



Snapchat

Snapper coder Jonathan Griffiths talks to us about his history with the BBC Micro

What drew you to the BBC?
Well, I was working for Acornsoft, so we had free access to them. But it was a lovely machine, being based on the Atom that I'd enjoyed learning my craft on, but better in all ways – faster processor, better graphics, full-colour, more memory and much more expandable.

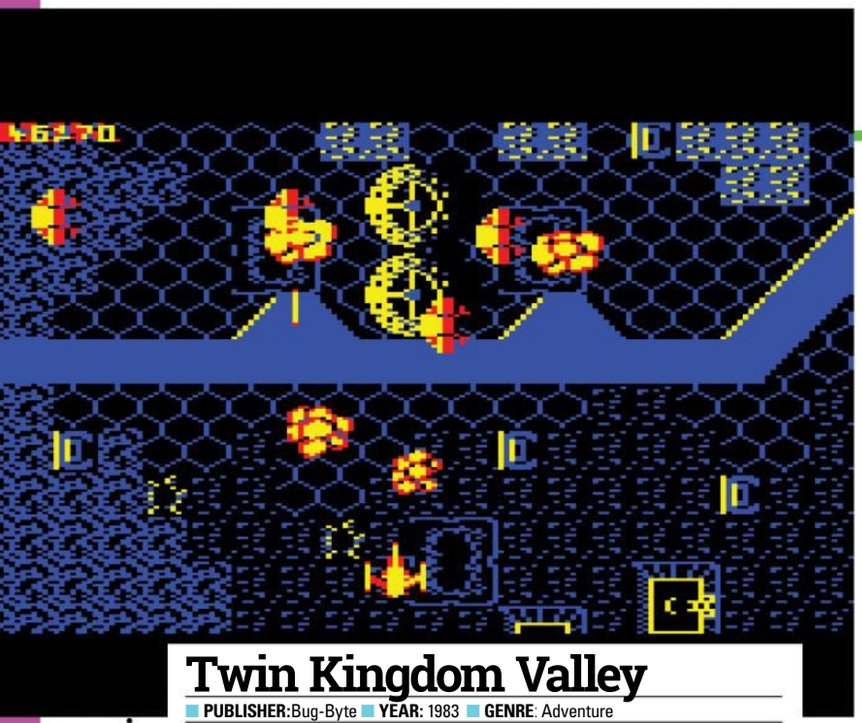
You were working at Acornsoft when *Snapper* was made. What was it like there?
Acornsoft only had about ten staff members - David (AKA 'DJD'), his secretary Mickey Luff (a lovely old woman), along with a bunch of us programmers. When I first joined in September 1981, Acorn were in the same offices as us, but a year or so afterwards they moved out to the old Waterworks site in Cherry Hinton. The atmosphere was very relaxed and informal, which suited me quite well.

Did you pitch *Snapper*, or were you asked to create it?
Three of us – Tim Dobson (*Monsters*), Neil Raine (*Defender*) and me – all decided to write copies of our favourite arcade games. The idea was to get as close as possible to the original, using a BBC model B with Mode 2 graphics (160x256 with eight colours). This used 20K of our 32K RAM, and the OS also used another 3.5K, leaving the game to run in a little over 8K RAM.

What's the most interesting anecdote you can remember about working on *Snapper*?
Being beaten at my own game! Various people, including Jon Thackray at Acorn, would play my (and the other) games assiduously, improving all the time, while I was busy writing *Rocket Raid*. Eventually they would start telling me that they'd reached the end and got to the 'acorn' screen, which I never did. I'd cheated and jumped straight there for the limited testing I did.

How does it feel knowing people still enjoy your game?
It's fun. New people occasionally find out that I wrote some ancient games, and are suitably impressed. One manager brought in his copy of *Creative Assembler* recently for me to sign, after he'd kept it since learning to program on the BBC as a child. Mostly, though, unless you're at least 40, you'd never have heard of my games.

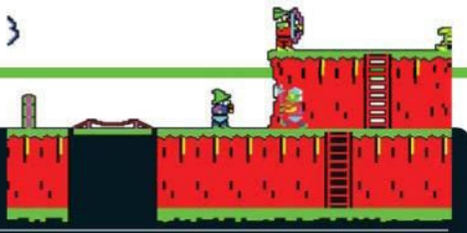
What are you doing now?
Working for British Gas, writing device code for gadgets. I wrote the firmware inside British Gas' energy monitor. We made some 750,000 which were given away to customers. The whole 'Internet Of Things' space is very exciting – it's rather fun to be at the forefront of another wave!



Twin Kingdom Valley

PUBLISHER: Bug-Byte **YEAR:** 1983 **GENRE:** Adventure

21 While there were a fair number of text and graphic adventures on the BBC Micro, only *Twin Kingdom Valley* has made your list. The valley is the home of two duelling kings and your task is to explore it and collect as much treasure as possible with the aim of scoring 1024 points. You're unlikely to do this, as it's a difficult game due to the sheer amount of enemies and tough puzzles. Although the graphics are limited, they manage to conjure up an enchanting fantasy setting. It's also filled with plenty of characters to interact with, creating a 'storybook come to life' vibe. Not bad considering this was Trevor Hall's first stab at the genre. It even tells you the secret of life, which is…well, play the game and find out.



Wizadore

PUBLISHER: Imagine Software **YEAR:** 1985 **GENRE:** Adventure

20 This lavish adventure was created by Chris '*Wing Commander*' Roberts and was his first published game. He originally wanted Ultimate to publish it, but the deal never happened. Although it has the distinctive visual look of an Ultimate game, along with some exceptionally smooth scrolling, the gameplay isn't quite up to the same standard. There's an interesting spell system at its core, but the actual controls are clunky in places, while the difficulty can make it rather frustrating to play.

However, the beauty of the aesthetics along with the sense of discovery in the world keeps you hooked, and that's before you consider that Imagine was offering £100 to those that could finish it.

Monsters

PUBLISHER: Acornsoft **YEAR:** 1982 **GENRE:** Platformer

19 If *Monsters* seems familiar, it's because it's a clone of Universal's rather wonderful *Space Panic*. The levels are filled with ladders and platforms and you must dig holes to trap the many monsters that are pursuing you. Once a monster has been caught, you have a limited amount of time to fill your hole back in, hopefully killing him so you can clear the level. *Monsters* was another slick clone from Acornsoft and captured every aspect of Universal's game, including the tight time limit. The AI and collision detection isn't quite on par with the arcade original, but they're small niggles and don't detract from what is a highly entertaining platformer.

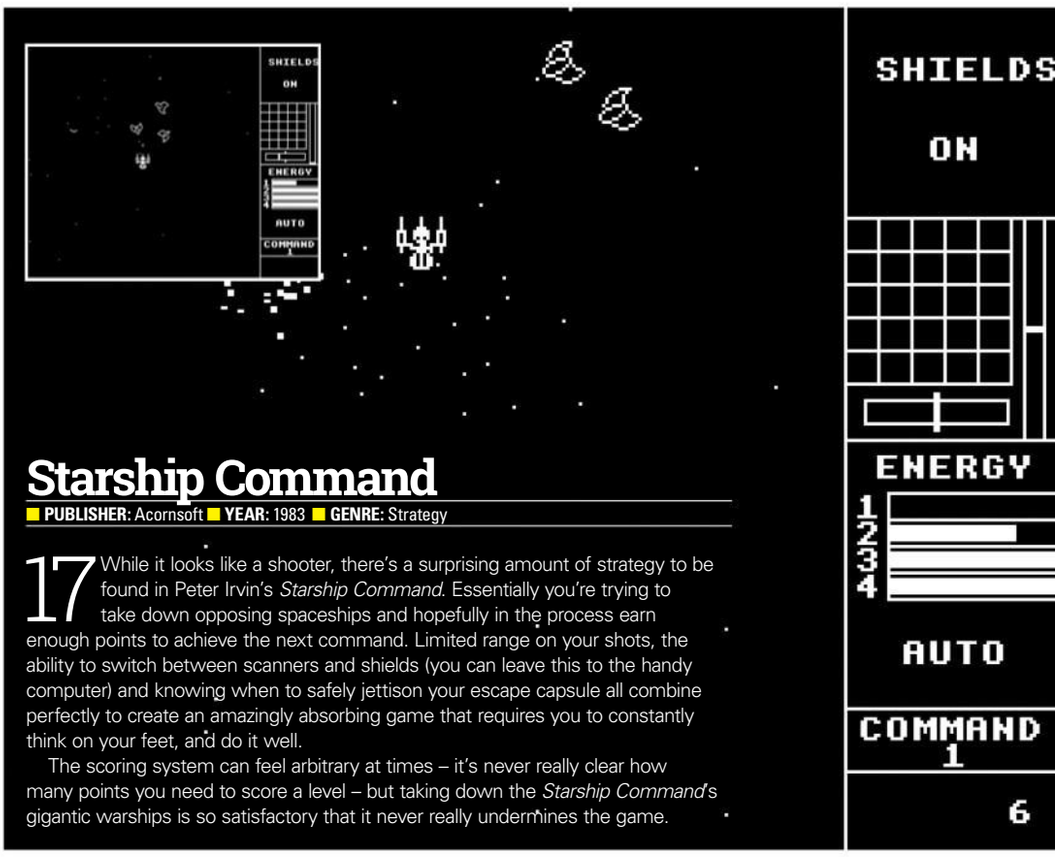
Mr EE!

PUBLISHER: Micro Power

YEAR: 1984 **GENRE:** Maze Game

18 We're astonished that this clone of *Mr Do!* is so far down your list because it's incredible. Coded by Adrian Stephens (who was also the programmer behind *Donkey Kong* clone, *Killer Gorilla*, *Mr EE!* is quite simply fantastic.

It does an great job of capturing the layouts of the original arcade game and matching all the gameplay mechanics. Even the music has been recreated. The brilliance of *Mr EE!* is the sheer amount of options that it gives you while playing. It's a masterful conversion of a masterful arcade game, which never received the love it truly deserved.



Starship Command

PUBLISHER: Acornsoft **YEAR:** 1983 **GENRE:** Strategy

17 While it looks like a shooter, there's a surprising amount of strategy to be found in Peter Irvin's *Starship Command*. Essentially you're trying to take down opposing spaceships and hopefully in the process earn enough points to achieve the next command. Limited range on your shots, the ability to switch between scanners and shields (you can leave this to the handy computer) and knowing when to safely jettison your escape capsule all combine perfectly to create an amazingly absorbing game that requires you to constantly think on your feet, and do it well.

The scoring system can feel arbitrary at times – it's never really clear how many points you need to score a level – but taking down the *Starship Command*'s gigantic warships is so satisfactory that it never really undermines the game.

Sailing The Good Ship Micro

Richard Kay recalls working on projects for Ocean Software

What was the BBC Micro like to code on compared to other 8-bit systems?

The BBC Micro was great to work on at that time, as it was extremely fast for its day. It was almost impossible to run out of processor time and in many circumstances you had to put a delay loop in your code in order to wait for the 'frame flyback' (the time taken to complete a screen update).

It was a very raw machine to work on, unlike the C64 which had hardware sprites – this had its advantages but meant you were limited to what the hardware allowed you to do with those sprites. However, on the BBC you had to write your own sprite routines which meant you had far more flexibility in what you could do, as you were only really limited by your ability and the memory that was available.

The major limitation of the BBC was its lack of memory as the screen display devoured so much of it, especially in full-colour mode, so you had to compress pretty much everything and decompress when you needed the images, map data and code to run other parts of the game.

What was the most impressive BBC Micro game that you played and why?

The most impressive game I have ever played on the BBC Micro was *Elite*, because it had so much crammed in to it and it opened up a new way of thinking when it came to game design and what you could achieve with the medium.

Why do you think the machine had some many excellent arcade ports?

The BBC hardware allowed you to take full control of the screen and you could even change the position of what memory position the display hardware was looking at, so you could achieve some pretty impressive scrolling – it was a tricky task but very achievable.

What BBC Micro game that you've been involved with are you most proud of and why?

My first ever commercial game was *Mr Wimpy* which was awful and had some pretty impressive bugs in it, but it was my first ever commercial product so for that reason I was proud of the achievement. The final BBC game that I coded for Ocean Software was *Hyper Sports*, and it was a port of the arcade game. It had many challenges and would not fit in one load, so all of the levels were loaded separately (credit to Kevin Edwards for his superb tape loader). This game made it to number one in the charts at Christmas 1985 so I'm proud of that fact and that the game was pretty close to the arcade game.

The Sentinel

PUBLISHER: Firebird **YEAR:** 1986 **GENRE:** Strategy

16 While he's best known for his love of racing games, Geoff Crammond also created this 8-bit masterpiece. Yes it runs incredibly slow compared to its 16-bit cousins, but there's still something terribly thrilling about playing Geoff's game and trying to avoid the all-seeing and titular Sentinel.

The gameplay is incredible, with you controlling your Synthoid and attempting to reach higher ground than the Sentinel that controls each area. During a turn you can absorb spaces, and also build trees and boulders and perform several other useful actions. New Synthoid shells can be placed on boulders and empty areas, allowing you to slowly and gradually make your ascent by transferring your consciousness into the new Synthoid and absorbing the old one.It sounds complicated and it is to a point. But it's also completely captivating, with the slow burn of loading in the visuals actually adding to the deep gameplay.

This game is still good. One I still play, and I still start panicking when the robot can see me! 10,000 procedurally generated 3D landscapes being rendered on a humble 8-bit is still pretty darn impressive!
uglifruit

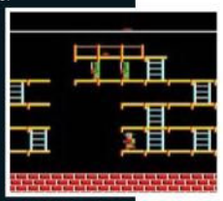
Arcadians

PUBLISHER: Acornsoft
YEAR: 1982 **GENRE:** Shoot-'em-up

15 Nick Pelling's second game on your list is a rather excellent *Galaxians* clone and yet another Acornsoft game to make the cut. The bullet firing feels a little slower compared to the arcade game and your ship is bulkier, but it's an otherwise superb clone.

Castle Quest

PUBLISHER: Micro Power
YEAR: 1983 **GENRE:** Platformer



14 Famed for its smooth 'scrollerama' side-scrolling, *Castle Quest* is a huge platform adventure that requires you to collect a variety of everyday items to overcome the puzzles and hazards found in the huge environment that Tony Sothcott ingeniously created.

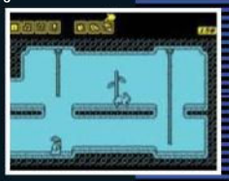
Killer Gorilla

PUBLISHER: Micro Power
YEAR: 1983 **GENRE:** Platformer

13 It's a pity that Adrian Stephens only made two arcade clones for the BBC, as he proved he was a dab hand at them. As you may have guessed, this is a port of *Donkey Kong*, and it's a great one too, with all the original levels included.

Imogen

PUBLISHER: Micro Power
YEAR: 1986 **GENRE:** Adventure



12 There's a lot of brain stroking to be done in Michael St Aubyn's *Imogen*, particularly if you want to reach its end. The puzzles are incredibly devious, while the ability to transform into various animals ensures that the gameplay always remains entertaining.

Frak!

PUBLISHER: Aardvark
YEAR: 1984 **GENRE:** Platformer

11 Nick Pelling's third game rests just outside your top ten. It's a worthy position for the lovable caveman who has a penchant for swearing and yo-yos. While the colours remain insanely garish, there's no denying the grerat level design and gameplay.

A Cut Above

Superior Software's co-founder Richard Hanson gives his insight into the important BBC publisher

Why was Superior Software founded?
Home computers have always been of great interest to me, and in their early days I wrote a number of games and utilities. I decided to set up Superior Software with another software developer, John Dyson, as we felt confident about successfully managing a software business; it was a very interesting and exciting opportunity.

Why choose to focus on the BBC?
The BBC Micro was a well-produced British home computer that appealed to many programmers due to its facilities and features. Acorn created some remarkable computers, and the BBC Micro was an utter masterpiece of design.

A lot of famous developers had their break with Superior, how important was it to secure talent?
Several very skilful and well-known developers – including Martin Edmondson, Chris Roberts and Peter Johnson – have written software for Superior, and that has certainly been extremely important for the company's success.

How do you feel that over half of the top ten BBC games are Superior titles?
It's very pleasing and a nice acknowledgement for everyone who has worked on those games.

Why do you feel the BBC remains so loved after all these years?
Some wonderful software, relatively easy computer to program, plenty of handy hardware features – and many people have very fond memories of using the BBC Micro in their earlier years.

Which is your favourite of Superior Software's top six and why?
I enjoy all of the leading BBC Micro games, and my personal favourite is definitely *Repton 3*. I think it's the best puzzle-solving game I have ever experienced. The *Repton* series of games still has a keen following today: Superior now sells PC and iOS versions of the games, and an Android version of *Repton* is almost ready.

Was there any rival game you had a chance to publish and didn't?
Not that I recall. An unusual game called *Jeremy Goes Jumping* was a close decision to publish, but it didn't quite make the grade for publication.

Superior Software is still going today. What's the secret to your success?
I have always done my best to treat everyone – customers and colleagues alike – fairly and with integrity, and I think that's been very important over the years. The customer feedback, particularly regarding the *Repton* games, has been very gratifying – that's the most enjoyable and encouraging aspect of all.

Repton

PUBLISHER: Superior Software
YEAR: 1983 **GENRE:** Maze game

10 It's perhaps fitting that a large number of original games, many of which started off life on the BBC, make up your final top ten. *Repton* is first up and is remains an excellent debut by teenager Tim Tyler.

It might only feature 12 levels, but it will take a hellishly long time to master Tim's game, particularly if you choose to avoid the admittedly handy password system that he included. It may look like *Boulder Dash* (though Tim remarks that he has never played it to this day) but that's where the similarities end. *Repton* is very much its own beast, with a far larger emphasis on exploration compared to *Boulder Dash*. You need to be far more considered of your actions too, as it's all too easy to create situations that will make a stage impossible to finish. You'll stick with *Repton*, though, realising it was your own stupid greed and not Tim Tyler's clever design that stopped you from securing that last diamond.

Revs

PUBLISHER: Acornsoft **YEAR:** 1984 **GENRE:** Racing

9 He may have found critical acclaim with his *Grand Prix* series, but BBC Micro owners knew Geoff Crammond was a developer to get excited about thanks to the likes of *Aviator*, *The Sentinel* and *Revs*.

Although it looks like a traditional racing game, there are a lot of cool things that separate *Revs* from its peers. It's possible to adjust the wind resistance on your vehicle; the AI of opposing cars is relatively advanced; undulations in the track's surface have been painstakingly added, while the rendition of Silverstone is surprisingly accurate.

The power of later PCs would allow Crammond to truly indulge in his obsession with the genre, but it's amazing to see what he was able to achieve on such a limited platform. If you want a more enhanced *Revs* experience, then we suggest you track down *Revs 4 Tracks*, an expansion that adds Donington Park, Snetterton, Oulton Park and Brands Hatch.

I think the B version missed out on some extra content that the master had – maybe the music? Great game though, particularly the helicopters.
Alexlotl

Stryker's Run

PUBLISHER: Superior Software **YEAR:** 1986 **GENRE:** Run-and-gun

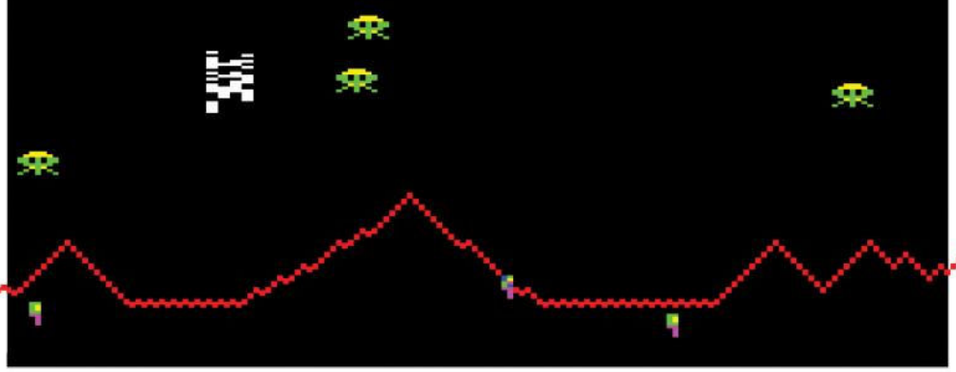
8 Here's another gem from Chris Roberts that you've voted for. Coming in enhanced and non-enhanced versions, it's a rather splendid little run-and-gun with lovely scrolling and some extremely impressive visuals. In fact, the visuals really are something, with plenty of variety to the locations and lots going on. The enhanced version of the BBC Master/B+ look particularly nice, pleasing anyone who would have bought into the more advanced systems.

Fortunately, the gameplay is just as good regardless of which version you may have played, and while it lacks the exploration found in its sequel, *Codename Droid*, there's still plenty to enjoy. Firing lasers and throwing grenades never gets tiring, while watching enemies disintegrate into skeletons is a lovely touch. Exhilarating to play, it's like discovering a arcade game of the era that you never knew existed. While it's most likely inspired by a few classics, it doesn't feel like an all-out clone of anything.

Planetoid

PUBLISHER: Acornsoft **YEAR:** 1982 **GENRE:** Shoot-'em-up

7 One thing we've learned while compiling this list is that we need to do a standalone feature concentrating on the many amazing BBC Micro arcade clones that existed for the machine. This is perhaps the finest of the lot and it's rather fitting that it's charted so high. One look at *Planetoid* should tell you that it's an obvious clone of *Defender*. Less obvious is just how good a clone it is. It's a staggeringly fast game, and it looks absolutely stunning in motion, effortlessly matching the insane speed of Eugene Jarvis' original game. It was even called *Defender* at one point, but the name was changed (although, interestingly, Acornsoft didn't make anywhere near as many adjustments to *Planetoid*'s look as it did with *Snapper*). Clones of *Defender* popped up on numerous 8-bit systems, but none could match the sheer majesty of *Planetoid*. An astonishingly good blaster.

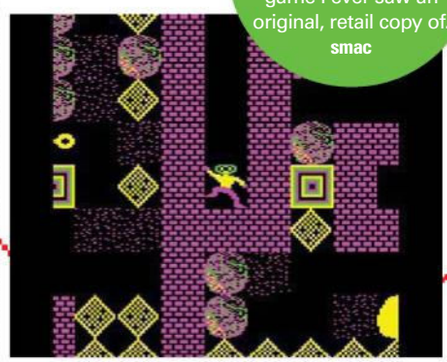


Repton 3

PUBLISHER: Superior Software
YEAR: 1985 **GENRE:** Puzzle

6 With Tim Tyler passing up on making a third *Repton* game, the task fell to Matthew Atkinson. Guided by Superior Softare, Matthew's sequel ditched the gigantic cavern of its predecessor for the more familiar level and password layout of the original *Repton* game. It did include a few *Repton* 2 additions mind, adding in the likes of fungus and bombs. It's the excellent level editor that really helps *Repton 3* stand apart from its peers, and it was clearly a hit with gamers as it went on to sell more units that the previous two games combined. Not bad for an ugly lizard man with a fetish for collecting diamonds.

A good arcade puzzler, with some devilishly fiendish levels. I think it's the only Beeb game I ever saw an original, retail copy of.
smac



Chuckie Egg

■ **PUBLISHER:** A&F Software ■ **YEAR:** 1983 ■ **GENRE:** Platformer

5 While it's not based on any arcade games, *Chuckie Egg* does have a lovely arcade feel to it. This should come as no surprise as Nigel Alderton used to enjoy playing them while he was designing his popular game. The controls of Chuckie Egg are tight and precise, the gameplay is slick and responsive, while the level design challenges but never frustrates. In fact it's so good, it wouldn't look out of place in an arcade next to the like of *Pac-Man* and *Donkey Kong*. While it started off life as a Spectrum game, A&F's Doug Anderson and Mike Fitzgerald soon realised that creator Nigel Alderton had a hit on his hands and they steamed ahead with BBC Micro and Dragon 32 ports. While the first eight stages are challenging enough, things take a sinister turn from Stage 9 onwards. The first eight levels feature a caged duck, who eventually manages to break free, and begins to chase you around the screen as you continue your frantic egg collecting quest. A genuine classic that we're pleased to see place so high.

A Good Egg Nigel Alderton remembers creating this platforming classic

What games inspired *Chuckie Egg*?
Chuckie Egg was inspired by *Donkey Kong* and a less well-known game called *Space Panic* which I played in the newsagent on the way home from school. It's a little embarrassing how similar *Chuckie Egg* and *Space Panic* look.

How do you feel the BBC version compares to the Spectrum original?
I've not played the BBC version for 30 years but I think the jump was smoother and more accurately modelled a natural fall. Other than that from what I remember they are pretty much identical.

Why do you feel the game is still so popular?
I don't know! Maybe you could ask players. It's pleasing to know that people still recall it with fondness years later.

Why did you never work on the sequel?
I wasn't keen on the game design that A&F came up with for *Chuckie Egg 2*. It seemed to be more of a strategy game than an arcade game and I preferred arcade-style games – I still do. Also, I had to concentrate on my A Levels.

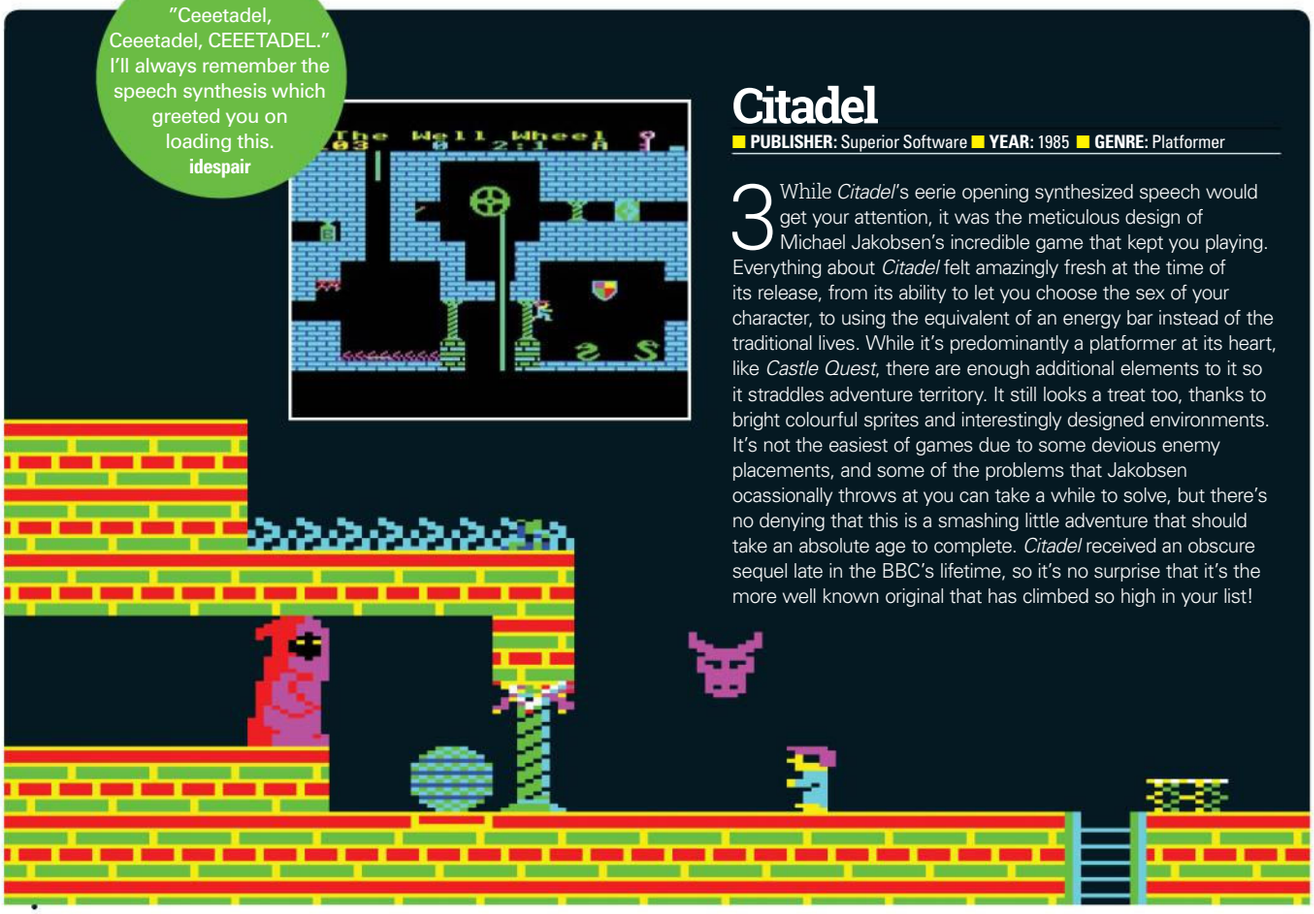
What are the elements that make *Chuckie Egg* so successful?
It's addictive, but I'm not sure what makes it or any game addictive. I do like the way *Chuckie Egg* progresses. There's a balance between the familiar and the unfamiliar – enough repetition to allow a player to learn, but enough surprises to keep things interesting, hopefully.

Why did you let the duck break out of its cage for the second loop?
Each screen layout took up quite a lot of memory so I couldn't have very many of them, but I wanted the game to keep evolving for many more levels. The duck meant I could reuse the same platform layouts to get more levels for not much more memory.

I wanted the duck to be visible in its cage for the first eight levels but be completely passive so the player would just forget about it. Then on level nine they would get a bit of a surprise.

What was the biggest technical challenge you faced while working on *Chuckie Egg*?
Simply getting the man to interact with the platforms and ladders in a way that looked roughly correct was really fiddly. Just to get him walking round so he didn't get trapped, or hang in space when he should fall took many rewrites. Also when he is jumping or falling, getting him to bounce off the platforms correctly and land on platforms rather than falling through them took much head-scratching. From the very start of coding to the end, I was messing with those bits of the code.

"Ceeetadel, Ceeetadel, CEEETADEL." I'll always remember the speech synthesis which greeted you on loading this.
idespair



Citadel

PUBLISHER: Superior Software **YEAR:** 1985 **GENRE:** Platformer

3 While *Citadel*'s eerie opening synthesized speech would get your attention, it was the meticulous design of Michael Jakobsen's incredible game that kept you playing. Everything about *Citadel* felt amazingly fresh at the time of its release, from its ability to let you choose the sex of your character, to using the equivalent of an energy bar instead of the traditional lives. While it's predominantly a platformer at its heart, like *Castle Quest*, there are enough additional elements to it so it straddles adventure territory. It still looks a treat too, thanks to bright colourful sprites and interestingly designed environments. It's not the easiest of games due to some devious enemy placements, and some of the problems that Jakobsen ocassionally throws at you can take a while to solve, but there's no denying that this is a smashing little adventure that should take an absolute age to complete. *Citadel* received an obscure sequel late in the BBC's lifetime, so it's no surprise that it's the more well known original that has climbed so high in your list!

Thrust

PUBLISHER: Superior Software **YEAR:** 1986 **GENRE:** Exploration

4 While it's obviously inspired by the old coin-op *Gravitar*, *Thrust* is very much its own game and a great one at that. Jeremy Smith's masterful coding of the BBC Micro resulted in a fiendishly clever puzzle game/shooter that required you to explore caverns in an attempt to retrieve a precious pod. Once secured, it had to be returned to deep space so you could tackle the next stage.

Sadly, Jeremy himself is no longer with us, but he's left behind a satisfying challenging game that was so successful, it was ported to a huge number of other systems.

Exile

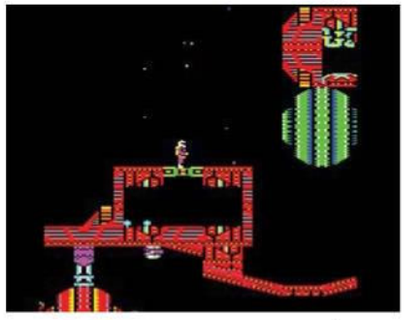
PUBLISHER: Superior Software **YEAR:** 1988 **GENRE:** Adventure

2 Your second favourite BBC game resulted in collaboration between two talented coders, *Thrust*'s Jeremy Smith and *Starship Command*'s Peter Irvin. The end result is a huge, expansive space adventure that's only eclipsed by another epic collaboration.

Taking control of intrepid protagonist Mike Finn, the aim of Exile is to explore the planet Phoebus as part of a rescue mission. Phoebus is huge in size and as detailed as Mark Cullen's enjoyable novella, which accompanied Exile's release.

The actual mechanics, borrow heavily from the games of both authors, but are also distinctly unique, thanks to its nonlinear gameplay, a handy life-preserving teleport system and impressive AI with enemies using line-of-sight vision.

The controls admittedly take a while to get used to, but as your jet pack's abilities open up, so to does the game. The end result is a truly astounding experience that is as enjoyable as it is atmospheric.



retro GAMER READERS' CHOICE

Elite

PUBLISHER: Acornsoft **YEAR RELEASED:** 1998 **GENRE:** Space exploration

1 Was any other game ever going to top your list? Nope, although it wasn't the runaway success we were originally expecting, being separated from the mighty *Exile* by only a handful of votes.

While Ian Bell and David Braben's space adventure isn't for everyone, there's no denying that it's one of the most epic games to be found on any 8-bit home computer. The beauty of *Elite* remains in the sheer freedom that the game offers you. While getting out of the docking station can be a frustrating experience, the scale of exploration that *Elite* gives you remains immense. It's not a pure shoot-'em-up, but there's enough action in *Elite* to satisfy those who like to shoot first and ask questions later. Similarly, there's enough depth here to placate those who just want to fly around space, discovering new planets or taking on a life of piracy. No matter what type of gaming you like to do, *Elite* can normally cater for your needs, making it an incredibly refreshing experience that never gets old.

Money is effectively the driving force behind *Elite*, allowing you to do everything from upgrade your ships and weapons, to increase your cargo capacity or simply buying an expensive docking system so you could completely ignore one of the few tedious aspects of *Elite*'s game design.

A need for credits may fuel your progress in *Elite*, but the need to explore new parts of the game's solar system becomes an equally addictive drug, making you wonder what secrets the next planet will be hiding and whether it will have anything worth trading or smuggling. You never forget your first hyperspace jump, or the first time you're ambushed by aliens, just like you'll never lose that satisfaction of finally upgrading to *Elite*'s best ship or surviving your first frenetic dogfight. *Elite* is a series of standalone moments that all collide together to create a satisfying whole, it rewards you for taking risks, but also knows that gamer's ultimately just want to do their own thing and discover a game's secrets for themselves.

With production values as lavish as the gameplay — it included a huge novella, a 64-page training manual and other lovely goodies within its huge box — *Elite* became a deserved success that rapidly colonised other home systems, including consoles like the NES.

Ian Bell and David Braben may no longer be working on games together, but they've left a legacy behind that helped define many later games. The success of *Elite: Dangerous* on Kickstarter is arguably down to the love many gamers have for the 8-bit original, and its influence can be seen in *Freelancer*, *Eve Online*, *No Man's Sky* and other titles. It's little wonder then that this pioneering release has gone on to become your greatest BBC Micro game of all time.

As per my username. My secret shame is that I never actually got to be *Elite*.
Commander Jameson

Best In Every World

Elite co-creator David Braben celebrates the game's enduring success

How do you feel about *Elite* being the greatest BBC game?
It's great, and I'm glad so many people voted for it!

Why choose to create *Elite* on the BBC?
In those days, it wasn't a case of working out the best markets or anything. I had an Acorn Atom, which was pretty close to a BBC Micro – and I had tweaked the software to make it more like a BBC, and the hardware to make it run at 2MHz (same as the BBC). Ian had a real genuine BBC. Neither of us could afford another computer so realistically the choice of any other platform didn't exist until we'd earned money from the game.

What does it offer over the other 8-bit versions?
It was the first! The BBC had a 2 MHz (yep – not GHz!) 6502 CPU – by far the most powerful of the 8-bit generation machines, and in practice faster than a 4MHz Z80 (as found in the Spectrum), even though the number makes it sound better. This meant the framerate was higher. On some of the machines like the C64 (which had a 1MHz 6510 – similar but not quite as good as a 6502), we had a lot more memory, so used data tables to make the game go faster, but we didn't quite get a factor of two, so it was slightly slower than the BBC, but had more missions, music etc.

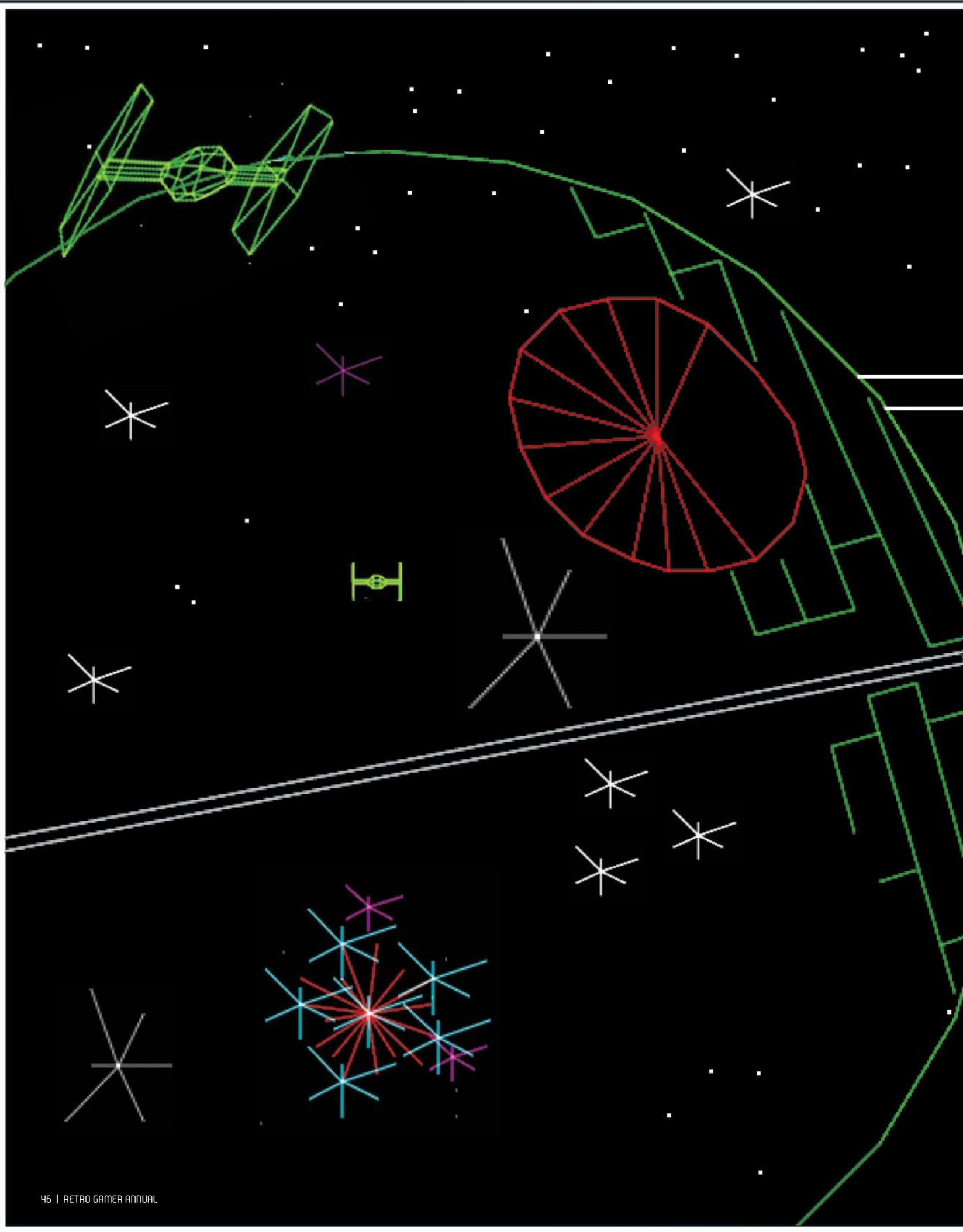
How does it differ from the Electron version?
The Electron was technically similar to the BBC Micro, but the screen display chip was not so programmable. On the BBC Micro we dropped the resolution a little from 320x256 to 256x256 – which made the rendering about 20 per cent faster (in 8-bit code 256 is a much easier number to multiply by than 320), and it dropped the screen memory from about 10K to 8K. Losing 2K from our total of about 20K of code was agonising. We lost quite a few ships, missions, and other details. Also we couldn't change colour for the dashboard as we did on the BBC – hence the black and white display.

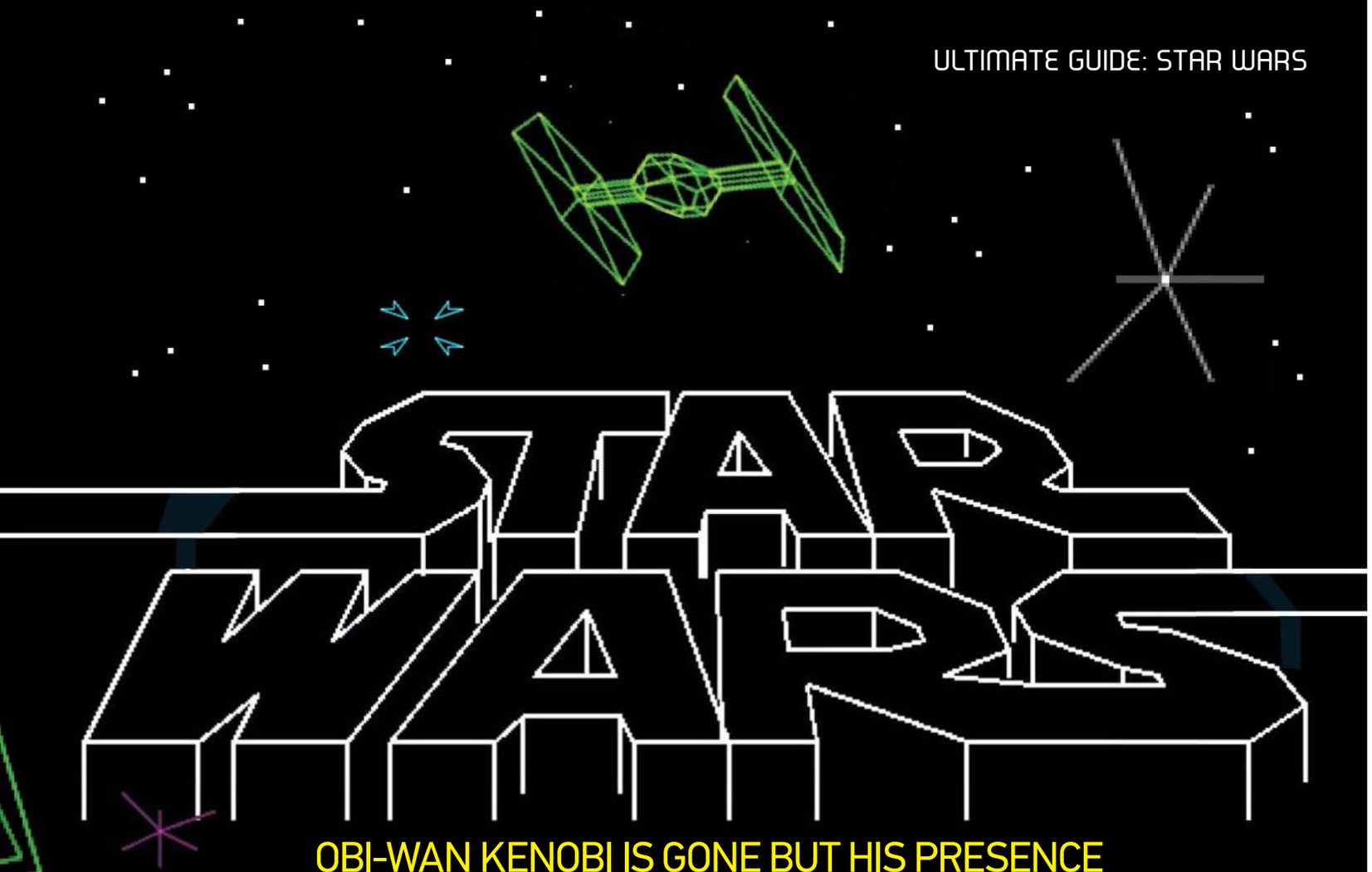
Why do you feel that *Elite* remains so popular?
For the time and since, it was pretty iconic. It didn't follow the mantra of so many of the other games at the time with three lives, short play time, and in many cases direct copies of games from the arcades. It had so many firsts to its name (first open world game, first with a novel, etc.), this has helped it stand the test of time.

Five Reasons Why It's Great

1. It offered a sense of scale and exploration that few other games of the time could offer.
2. *Elite*'s open-ended gameplay allowed you to experience the universe on your own terms.
3. Here is a technically incredible piece of coding that not only made the BBC incredibly desirable, but still holds up today.
4. It helped set a new standard for big triple-A games thanks to its incredibly lavish extras.
5. It's treated to a resounding number of very good ports, meaning anyone could enjoy it, regardless of system.

Elite on the BBC is better than every other game on every other 8 bit computer and everything that followed... and I'm a Spectrum fanboy. *Elite* was just something special. Best game ever written in my opinion.
ianpmarks





OBI-WAN KENOBI IS GONE BUT HIS PRESENCE IS STILL FELT WITHIN THE FORCE. THE DEATH STAR, UNDER THE COMMAND OF THE EMPIRE, NEARS THE SECRET REBEL BASE ON YAVIN IV. JOIN GRAEME MASON, NICK THORPE AND THE REBEL ALLIANCE TO STOP THE EMPIRE AND DESTROY THE LETHAL BATTLE STATION. MAY THE FORCE BE WITH YOU!

Thanks to a recent archaeological dig and years of bad press, it's fair to say that when people bring up movie licences and Atari, a rather unpleasant game comes to mind. Even its most ardent of fans would doubtless admit that Atari didn't create the greatest of games in the home console version of the Spielberg movie, *E.T.*, even if it's not quite as bad as history suggests. But to concentrate on the negative is to do Atari a disservice, as the company is also responsible for one of the very best movie tie-ins of the early-Eighties – and it's not hard to see why. *Star Wars* is a very different type of IP to *E.T.*, with a dramatic and action-oriented tone that seems to perfectly suit the medium of videogames.

MARQUEE
■ *Star Wars*' marquee merged two of its famous vehicles with some cool vector lines.

READERS REMEMBER
"Not the first game to carry the name, and oddly late to the party, but it gets things spot on. Its incredibly immersive and as soon as you put 10p in its slot, you're in the *Star Wars* universe. This is the one game that always makes me feel like I'm there, fighting for the rebellion. Slick vectors don't hurt, giving it a timeless quality that still looks good now, while the yoke controller offers precision control so any mistakes are yours alone. The clips from the movie are the icing on the cake. Home ports were pretty good, too."
ANTIRIAD2097

SCREEN
■ *Star Wars*' beautiful clean vectors shone through this horizontally-orientated CRT monitor.

SURROUNDING THE CONTROLLER
■ They may only be decals, but the surrounding of the controller helped immerse the player into the cockpit of the X-wing.

AROUND THE SCREEN
■ Plenty of bespoke moulded plastic around here in an attempt to mimic the film's spacecraft design.

COIN SLOT SURROUND
■ Schematic-style images of the Death Star adorn the front of the cab.

SIDE ART
■ Darth Vader and his TIE fighter feature prominently on this impressive side graphic.

ARCADE PERFECT

Atari's coin-op was a thing of beauty

Yet, until the release of this famous arcade game, fans had been left colder than a Hoth winter by the pixelated translations of their favourite sci-fi trilogy. The Atari 2600 and Mattel Intellivision both had the lukewarm *The Empire Strikes Back*, and 2600 owners also got to play the overhead lightsaber game, *Jedi Arena*. While their developers had nothing to be ashamed about in these titles, there was massive unrealised potential in the *Star Wars* licence.

Star Wars: A New Hope was released in 1977, when the early videogame consoles and home computers had little chance of recreating the movie's rousing thrills. The first seeds of the game were sown in 1980 when Atari released vector-graphics classic *Battlezone*. Thanks to its iconic controller and beautiful, clean-lined graphics, the tank shooter was a big hit and was also converted by Atari into the *Bradley Trainer*, a military simulator aimed at training drivers for the tank of the same name. While *Star Wars*' fast-moving vector graphics would be a far cry from the ponderous, land-locked, enemies of *Battlezone*, there was no doubt this was a key moment – the technology was catching up. Two years later came the Disney movie *Tron*, the videogame industry went cinema-crazy, and old IPs were enthusiastically revisited. With the third film of the *Star Wars* trilogy, *Return Of The Jedi*, impending, an arcade interpretation of the box-office smash first film seemed an obvious choice. Atari designer Mike Hally led a dedicated team of six designers and coders who spent six months creating the game. Mike himself had already had success as designer of *Gravitar*, *Star Wars* would prove to be an even bigger hit.

SCORE
00 PULL TRIGGER TO START
8 CREDITS
OBI-WAN KENOBI IS GONE BUT HIS
PRESENCE IS FELT WITHIN THE FORCE
THE EMPIRE'S DEATH STAR, UNDER TH
COMMAND OF DARTH VADER, NEARS T
REBEL PLANET YOU MUST JOIN
REBELLION TO STOP THE EMPI
THE FORCE WILL BE WITH Y
ALWAYS

» The famous title crawl precedes the game.

Mike's remit from Atari was simple: make a great game. From IP holder Lucasfilm, it was a slightly different story. George Lucas was notoriously picky about how the *Star Wars* licence was used, and the possibilities that the new technology presented had to be rigidly shoehorned into *Star Wars* lore. Perhaps influenced by another Atari title, the 2600 game *Star Raiders*, *Star Wars* took shape as a space-based shoot-'em-up, logically focusing on the climactic battle over the rebel hideout on Yavin IV. This gave the designers the opportunity to let the player assume on the role of hero Luke Skywalker, taking on a multitude of TIE fighters, the surface of the Death Star and the famous trench run. There were rules to be followed, however. Darth Vader could make an appearance but his TIE fighter could not be destroyed; and the hero could not really be killed, at least not in a graphic way. Atari worked closely with Lucasfilm to make sure the game met their requirements.

The graphics of *Star Wars* were a world away from those of *Battlezone* – where tanks are sluggish vehicles, the space combat of *Star Wars* was dynamic and fast-paced. However, vectors

READERS REMEMBER

"First encountering the sit-down cabinet with that amazing steering-wheel joystick hybrid... thing, glowing wireframe graphics and the incredible sound was a defining experience for me as a six-year-old. Awesome stuff!"

POB

TURN TO PAGE 92 FOR THE FULL INTERVIEW

MIKE HALLY

The Atari coin-op veteran revisits one of his most popular arcade games

How did you feel when you were asked to lead the *Star Wars* project?
I think that was the most excited I've ever been in my life! They could've picked people like Ed Logg or Ed Rotberg, who had superiority over me, and I'd come off *Gravitar* and *Akka Arrh* but for some reason they choose me to run the project and design the game. I didn't know how much work it was going to be but I wanted to make sure I got the best team and made the best game. *Star Wars* was such an important title. I just wanted to make sure it was top-notch.

Was it a difficult project to lead?
I told them about some hardware we had in development that would be perfect for it but it still took a long time to develop, about a year and a half, which was a long time for a coin-op game back then. It seems simple now but it was kind of 3D, we had to develop the hardware, the cabinet, the controller, that was key to how it played. Then we had to get it approved by Lucas, which added more time.

The fact the original *Star Wars* coin-op uses vector graphics on an XY display gives it a timeless feel. How key was that visual approach to the game?
The thing was if you were doing a space game using the XY display, it's dark, there are stars... it's perfect! As long as you don't have to do tons of buildings or realistic stuff you don't need raster. It was the hardware we had and XY was still the in thing in coin-op at the time.

Including speech added to the atmosphere of the game. Was that tricky to implement?
The dialogue had some great lines I could take out but yeah, the speech was really hard to do. So was the music. Everything took time!

Everyone remembers the cockpit cabinet which you could actually sit in and dream that you were actually flying an X-wing. Was that the plan from the start?
We knew it would be perfect for a sit-down cab as well as a stand-up. That's why we made such cool mouldings round the monitor and used this see-through dark Perspex, so people could see what was going on. And we spent a long time working on the controller so it felt just right.

***Star Wars* invariably gets named as one of the all-time favourite coin-ops. Why do you think it's so fondly remembered?**
It's easy to play but also really challenging and who doesn't love *Star Wars*? You really felt like Luke and you really felt like you'd destroyed the Death Star. It's absolutely the best game I've made.

ANDY CRAVEN

Vektor Grafix co-founder on the home conversions of Star Wars

Was *Star Wars* Vektor Grafix's first game?
Yes, we had just started the company. Mark (Strachan) and Dominic (Wheatley, Domark founders), were looking at the demo I had written and told me it would be perfect for a contract they had just won. 'What contract?' I asked and when they replied '*Star Wars*', I thought 'F**k me! *Star Wars*!'

Which versions did you have a hand in personally?
I was heavily involved in the Z80 versions and the PC version the following year, 1988.

Were you all *Star Wars* fans?
Hell, yeah. They gave us a coin-op to use and it was played 24/7. They also lent us a remote-controlled real R2-D2, which was awesome.

How did the Spectrum and Commodore 64 versions compare?
We had to play around with a number the number of visible objects to strike a balance on the Spectrum. It wasn't as slow as the C64 version – our C64 coder, Ian Martin, was a great coder and really did his best with it.

What did you think of the game *3D Starstrike* by Realtime games?
I thought it was great. The guys at Realtime were good friends of ours. In fact, Ian Oliver and I started Cross Products together and created SNASM, the cross development system.

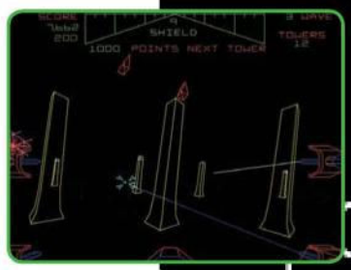
What's your fondest memory of working on *Star Wars*?
Getting to visit the Skywalker ranch and sitting in the downstairs cinema where George Lucas first showed the *Star Wars* rushes. Watching that very clip was amazing – he used WWII Spitfire footage for the TIE fighter scenes.

were not just stylistically good for the game, the 3D technology was more or less essential to show the enemy TIE fighters swooping in from all angles. What's more, it's just more fun to watch them shatter into a shower of polygonal pieces. The display was not the only element borrowed from *Battlezone*, either. Atari rightly identified that this was an opportunity to provide a unique gaming experience and a key facet of this was the controller, which was directly inspired by the adapted controller to Atari's *Bradley Trainer* military game. Providing the player with the intuitive yoke to control the X-wing fighter (complete with fire buttons modelled on the movie) proved to be a master stroke. Following it up with a sit-down cabinet, simulating the inside of the craft, complete with speakers, was genius.

Once ensconced within, the player was faced with choosing three difficulties, easy, medium or hard, the latter two offering scoring bonuses. The game then begins in space with the Death Star lurking ominously in the background. The fast laser beams would be nigh-on impossible to avoid, so Atari created fireballs for the enemy TIE fighters, glittering collections of shield-stripping energy that resembled angry snowflakes. These hung around on the screen long enough for the player to shoot at them, which neutralised them. Depending on the dip-switch setting, the X-wing had a certain amount of shields, which could absorb one hit each. Lose them all and it was game over.

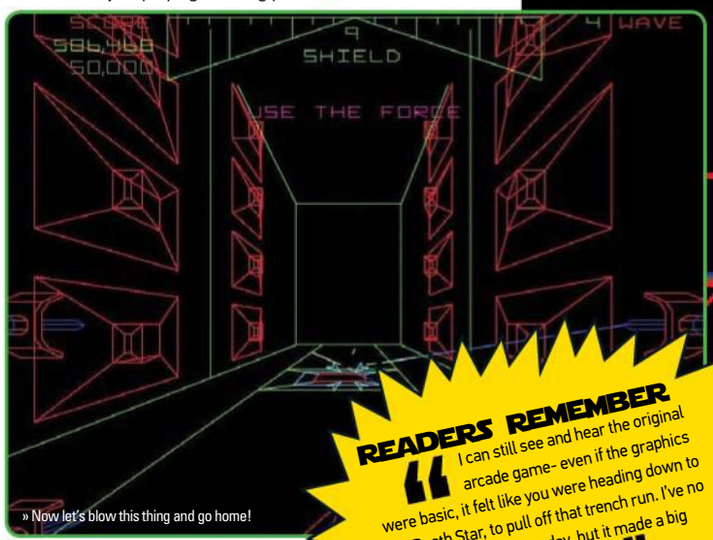
After having dodged enemy fire and taken out a few TIE fighters, the game shifts to the surface of the Death Star. In glorious vector beauty, a multitude of rectangular towers and turrets spit more fireballs at Red Five. These must be avoided or shot until the player reaches the trench and begins the deadly run to the Death Star's convenient weakness, the exhaust port. The trench is peppered with guns that again launch those pesky fireballs in the player's direction. These can be shot or avoided as your X-wing speeds towards its fateful destination, dodging the catwalks that become more frequent with each wave. Finally the exhaust port appears – miss and you'll have to attempt the run again, but if you can make one well-timed shot, the Death Star is history. If all this sounds *exhausting* (groan) then think again. Thanks to designer Mike Hally, even playing *Star Wars* for the first time can produce this spine-tingling result.

For Atari's ingenious move was to make the destruction of the Death Star a multiple occurrence. While not in keeping with the movie, this meant that undergoing the awesome thrill of stopping the Empire could be experienced easily, and also multiple times. And it was an experience that once you tasted, you wanted more of. You weren't just playing at being part



» Make sure that you aim for the peak of the towers!

» Skimming the surface of the Death Star for easy kills.



» Now let's blow this thing and go home!

READERS REMEMBER

"I can still see and hear the original arcade game- even if the graphics were basic, it felt like you were heading down to the Death Star, to pull off that trench run. I've no idea if it'd hold up today, but it made a big impression at the time."
RUMBLECAT

HOW TO PLAY

1 Things soon start to hot up in outer space. As this part is timed, there is no need to take out the TIE fighters – simply make sure you get those shield-sapping fireballs and survive through to the end.

2 Upon entering the famous Death Star trench, the words 'Use The Force' appear. Negotiate the narrow corridor without firing a shot and a special bonus is awarded. This approach will not be easy.

3 On the later waves the trench will include a myriad of catwalks, deviously placed such as the ones you can see above. Ignore shooting the guns and focus on dodging these and the odd fireball.

4 By wave two, Darth Vader's TIE fighter appears. It can't be destroyed, but each hit you land yields a 2000 point bonus. Rumours of a shield bonus should you hit it 27 times were later disproven.

USE THE FORCE

READERS REMEMBER

"The first game that ever nailed the 'you are in the film' feel for any movie, even though the graphics were only wireframe – mostly down to the sound effects, sampled from the movies and played back in stereo – you could track the TIE fighters off screen by which side their audio came in from, I'm sure. And the movie samples as you hit the trench ('I'm going in'), lost your shields ('They got R2!'), approached the end ('Use the force, Luke') and hit the target ('Great shot, kid!') were hugely evocative."

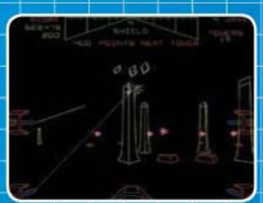
SMAC

"Providing the player with the intuitive yoke to control the nippy X-wing fighter proved to be a master stroke"

5 In the second section, set on the surface of the Death Star, towers spit fireballs at Red Five. Taking the towers out helps your score and you are also able to shoot fireballs through the towers themselves.

6 Having made it through space, across the surface of the Death Star and through the trench, here is your destination: the exhaust port. Watch for the trench emptying before letting loose those torpedoes!

7 During the game's attract mode, steering the flight yoke to the far left reveals a set of instructions, while going in the opposite direction displays the high score table. Obi-Wan, despite being dead, is still top!



8 The surface level has a special systematic scoring procedure, making it possible to net impressive bonuses. Additionally, destroy of all towers and a sizeable windfall is bestowed upon you.

MARK STRACHAN

Domark's Mark Strachan talks about acquiring the rights to the Star Wars arcade game

Were you worried about licensing such an old game?
Not at all. It was a great game and a great licence. It was a favourite of us all and the fact it was vector graphics in no way detracted from the enjoyment of the gameplay.

How did you go about getting the licence?
I seem to recall we contacted LucasArts at Lucas Ranch which to our amazement informed us that no-one had picked it up for use on home computers. Sadly we didn't get to meet George Lucas.

As simple as that?
Well, we also had to obtain a licence from Atari Games, but a trip to the United States got us both of them, and off we went.

How did Vektor Grafix get on board with the project?
[Vektor Grafix] seemed an obvious choice to us and I dealt with Andy Craven – a genius.

Which home port did you enjoy the most?
The Amiga version was by far my favourite. I think I played that more than any other Domark game. We also obtained the rights to The *Empire Strikes Back* and *Return Of The Jedi*, although I recall the latter being the weakest of the arcade games.

How well did *Star Wars* sell?
Really well. I cannot recall the exact numbers, but *Star Wars* really helped put us on the map after our *James Bond* games.

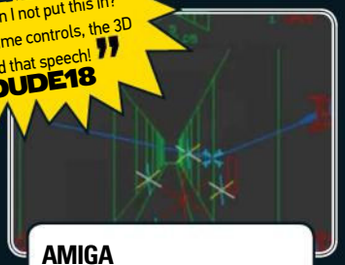
CONVERSION CAPERS

Your guide to the best and worst ports of the classic arcade game

READERS REMEMBER

"How can I not put this in? The sublime controls, the 3D gameplay and that speech!"

THEDUDE18



AMIGA

Vektor Grafix created a fine and almost arcade-perfect version of the aging coin-op for the Commodore Amiga, complete with sampled voices from the movie, which retained the atmosphere of the original. The inclusion of mouse control greatly improved this version over the 8-bits, and maybe even over the arcade original. Huge fun for a short blast.

ATARI ST

A decent conversion, as you might expect, and like the Amiga version, also with the added bonus of digitized speech and mouse control. The fast-paced action is a given, and the end result is another satisfying conversion that will test your blasting skills to the limit.

COMMODORE 64 (VERSION 1)

The first conversion of *Star Wars* on the Commodore 64 appeared shortly after the arcade machine in 1983. Sensibly opting for sprite-based graphics rather than vector, it's a solid conversion from Parker Brothers despite losing some of the original's features, such as the difficulty settings.

SHARP X68000

While not an official conversion, this game is well worth a mention. From its introduction, which features the beginning of the film converted into vector graphics, *Star Wars Attack On The Death Star* is a superb game with added speech, greater variation and a full cockpit view.

ACORN ELECTRON

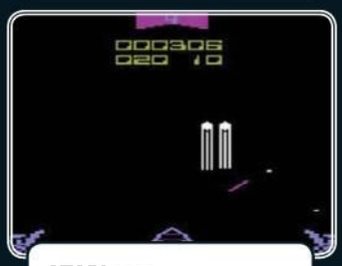
While many of these conversions emulate the speed of the original, if nothing else, this Electron version fails even in this respect. A monochrome display, slow response and stocky graphics make this one of the more inferior conversions. The force is not strong in this one.

BBC MICRO

While it was a reasonably fast interpretation with decent graphics, the sound left a lot to be desired on the BBC, with the X-wing's laser fire particularly grating.

ZX SPECTRUM

Despite infamously having no in-game sound, *Star Wars* on the Spectrum was a decent game that moved at a fair lick thanks to Vektor Grafix. Graphically accurate (although a little jerkier than the arcade game) and speedy, it's a thoroughly decent conversion, best played with the original soundtrack in your CD player.



ATARI 2600

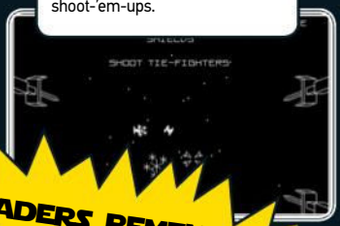
The vector graphics were disposed of for this conversion to the Atari VCS by Parker Brothers. There's a host of other changes, notably only two lasers on the X-wing fighter, but in all fairness it's a credible effort.

ATARI 5200/ATARI 8-BIT

These are similar so we've lumped them together. Containing more colours than their 2600 counterpart, these versions look good but unfortunately play like bantha fodder. Dodgy collision detection, a botched control scheme (not helped by the absence of a yoke of course) and a notably poor Death Star explosion make this far from *Star Wars*' finest hour.

MAC

Like the PC version, this was published by Broderbund in the US via a deal with Domark, but still developed by Vektor Grafix. The stark monochrome display doesn't harm the game and it's a respectable version on a format not renowned for fast-paced shoot-'em-ups.



COMMODORE 64 (VERSION 2)

While admittedly the Commodore 64 wasn't best suited to vector graphics, games such as *Mercenary* proved that it could be done with success. Unfortunately the second conversion of *Star Wars*, this time from Domark, looked good but lacked any of the pace and excitement of the legendary coin-op. A disappointment.

READERS REMEMBER

"The original sit-down vector cabinet was absolutely the best *Star Wars* game ever. Flying the X-wing with that great controller with all the digitised voices in the cockpit itself – unbeatable."

JOEFISH

AMSTRAD

While graphically very faithful, and offering some crunching sound effects, the Amstrad version, like other 8-bits, suffers from slowdown, especially during the Death Star surface stage. This can make the game frustrating to play at times, but it remains one of the best of the 8-bit home computer conversions.

COLECOVISION

The first thing that strikes you regarding this version is the extra detail that the X-wing's guns suddenly possess. Away from graphical niceties, the ColecoVision has a decent stab at converting the arcade original, although the cursor movement is too rapid for our liking.

PC-DOS

Despite some interminable sound effects and washed-out colours, the PC version of *Star Wars*, again developed by Vektor Grafix, moves at an impressive lick. It also boasts mouse support, which is about the only way to have any hope against the speed of the enemy attacks.

CIARAN GULTNIEKS

Vektor Grafix's Ciaran Gultnieks takes us through his experiences developing the legendary hit arcade game

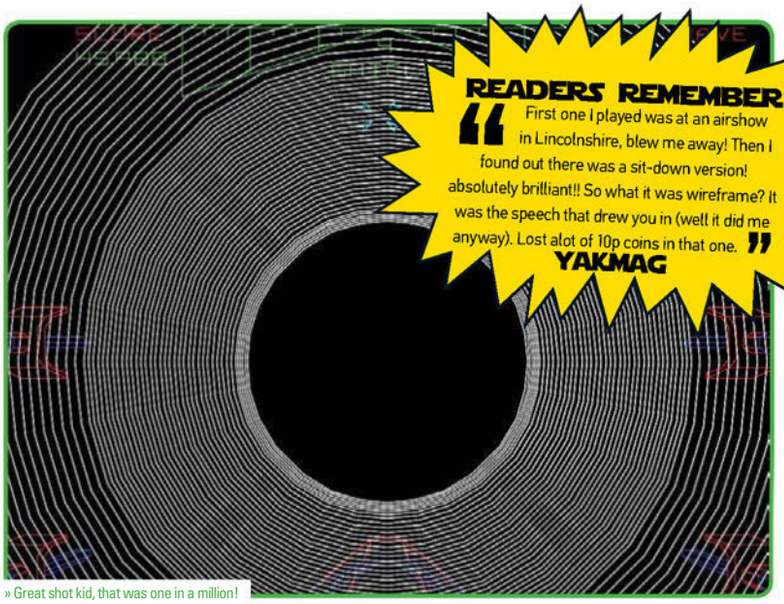
How did you get involved with *Star Wars*?
I had been working at Vektor Grafix for a few months, having started as their first employee. I guess I got onto it because there was no-one else! Domark had the licence for Europe and it commissioned us to do the work.

Did you have the arcade machine to play and learn on?
Yep, I had it right next to my desk which was an amazing experience to a 16-year-old who had only previously encountered arcade machines during occasional visits to the seaside.

Were you aware of the various clones of the game such as *3D Starstrike*?
More than aware. Realtime Games, developers of *Starstrike*, were – completely by coincidence – two doors down the corridor from us. And I'd played their games extensively, so basically found myself with an arcade machine by my desk and my childhood heroes working next door but one!

The Spectrum version infamously lacked any sound or music.
If I recall correctly, it was billed as having no sound in order to give you the maximum performance. This was, to put it politely, marketing speak. In fact, the publishers wanted the game 'right now' and there was simply no time available for sound.

Who did you end up working with on the game?
Myself and Andy Craven [co-founder of Vektor Grafix along with Danny Gallagher] were the developers on the Spectrum, Amstrad and PC versions. It took eight weeks from start to finish. I feel privileged to have had the opportunity to work on it and I guess it put Vektor Grafix on the map and probably set it up financially.



READERS REMEMBER

"First one I played was at an airshow in Lincolnshire, blew me away! Then I found out there was a sit-down version! absolutely brilliant!! So what it was wireframe? It was the speech that drew you in (well it did me anyway). Lost alot of 10p coins in that one."
YAKMAG

» Great shot kid, that was one in a million!

"Atari's ingenious move was to make the destruction of the Death Star a multiple occurrence"

of the Rebel Alliance – the first-person 3D view allowed you to truly feel as if you were piloting an X-wing. Not only that, but the voice clips from the film do an excellent job of keeping you immersed. Between R2-D2's beeps and Obi-Wan Kenobi's voice imploring you to trust him and "use the force" over the speakers, you felt as if you were Luke Skywalker himself as long as you were in that cabinet. For *Star Wars* fanatics, it was wish fulfilment at its finest.

The game's appeal didn't depend on whether or not you'd enjoyed the film. With its range of special bonuses, *Star Wars* became an addictive score-attack game. Such bonuses include an end-of-wave 5000 points for each shield remaining; a progressively-increasing force-inspired hand-out for not firing during the trench run and a 50,000 award for destroying all the towers in phase two. In a record set in 1986, David Palmer remains the most skilled pilot, attaining an incredible score of 31,660,614 with just six starting shields and no bonus shields, according to website Twin Galaxies. Under factory settings, players could carry on indefinitely, leading to some impressive endurance records. Brandon Erickson's 2005 record for a single credit play stands at 54 hours, and in June 1985, the three-player team of Flavio Tozzi, Dave Roberts and Mike Ohren managed five days, two hours and 26 minutes.

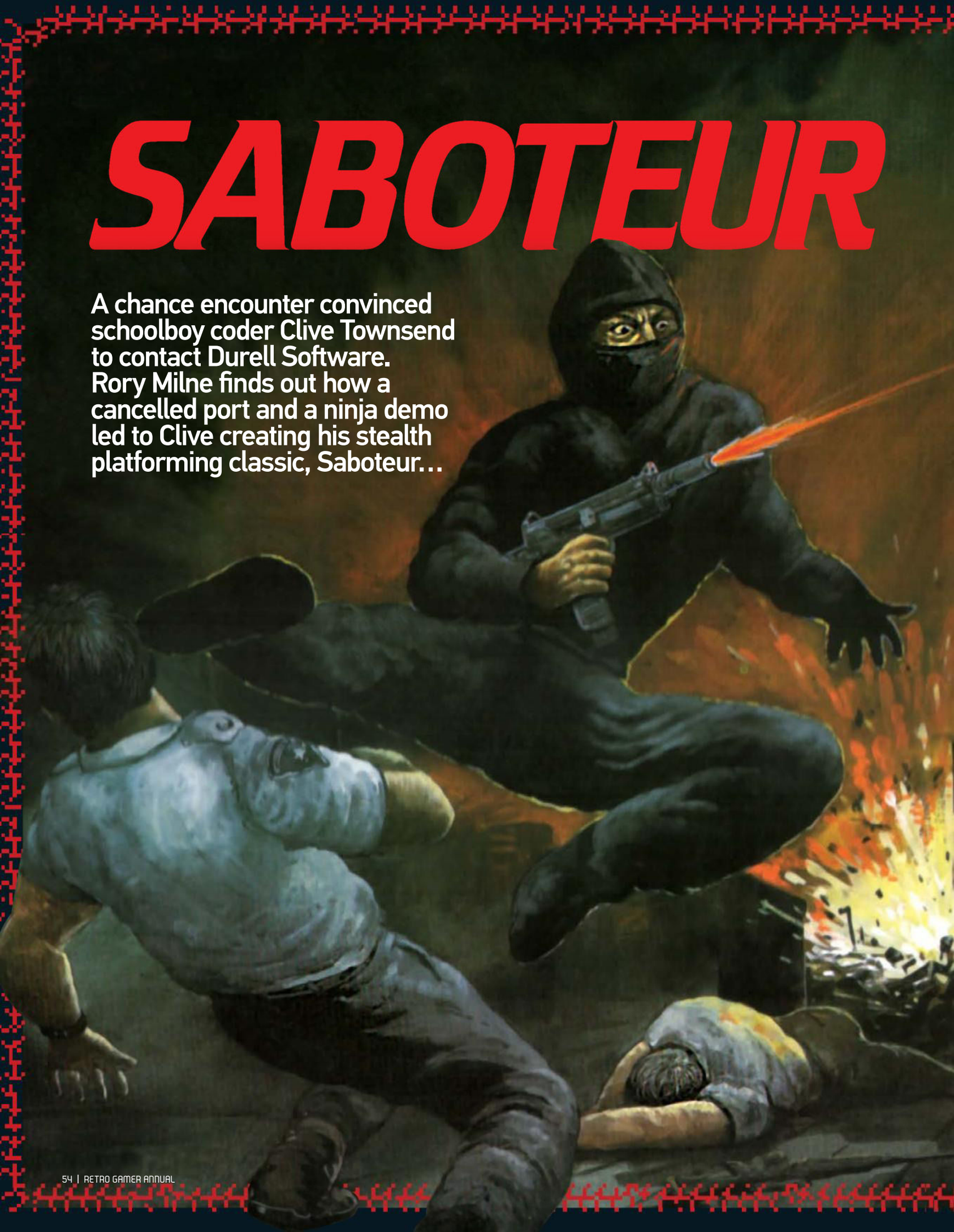
Releasing alongside *Return Of The Jedi* in mid-1983, *Star Wars* was a phenomenal success for Atari. Over 10,000 of the game's upright cabinets were built, alongside 2,450 sit-down cabinets – making it the last of Atari's arcade games to crack the 10,000 unit mark until *Area 51* 12 years later. The game's sales meant that it quickly made its way to home formats – first from Parker Brothers in 1983 and 1984, and then later from Domark in 1987 and 1988. A sequel was also inevitable, but rather oddly, Atari went for the third film, *Return Of The Jedi*, for the next game. Also, strangely, it jettisoned the vector graphics in favour of an isometric sprite-based display, which although more varied, didn't hold the immediacy of the original. *The Empire Strikes Back* followed a year later (1985), and returned to the vector graphics style. The final section saw the player navigating an asteroid field rather than escaping Bespin. Neither game was as successful as the original, particularly as *The Empire Strikes Back* was only available as a conversion kit for *Star Wars* cabinets.

Today, the *Star Wars* coin-op remains a revered game, spoken of in nostalgic-laden tones by those of us old enough to remember sitting in that cockpit, with friends and spectators crowding the sides, and Obi-Wan Kenobi himself offering warm encouragement through the speakers behind. Remember, the force will be with you. Always.

» Obi-Wan leads the high score table.

SABOTEUR

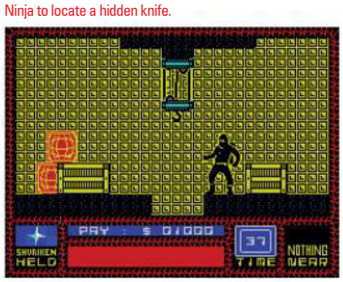
A chance encounter convinced schoolboy coder Clive Townsend to contact Durell Software. Rory Milne finds out how a cancelled port and a ninja demo led to Clive creating his stealth platforming classic, Saboteur…



The UK home computer scene of the early-Eighties was synonymous with bedroom coders, many of who dreamt of replicating the games they played in amusement arcades on the systems they had in their homes and of ultimately getting their work published. Of course, the reality was seldom this simple, as a teenager Clive Townsend found out when he met Durell Software boss Robert White. "My original plan was to sell some of my homemade games in a local computer shop. While the shop said they would sell my games, they pointed out that Taunton had a real software house just down the road. A real stroke of luck, as from the outside the Durell offices didn't attract much attention and they weren't actively advertising for new staff. So I arranged a meeting with Robert White and showed him my games. One of [them], called *Citadel*, was a spaceship-based arcade game with three stages – similar to *Space Invaders*, *Missile Command* and *Scramble*. Robert liked the games, but suggested I learn assembler instead of using compiled BASIC. He also showed me Durell's latest game, *Jungle Trouble*, and challenged me to break the copy protection system. That seemed to impress him enough to let me visit the offices during school holidays, which turned into a job offer when I left school."

Despite having a foot in Durell's door, on leaving school, parental pressure persuaded the young coder to turn down Robert White's offer and continue his formal education, although this proved to be a short-lived resolution. "My dad wanted me to go to college so I did – although my teachers thought I was weird for studying maths, physics and art. I was told that I'd never find a job that needed that combination of skills… Well after a year at college, I realised that I was missing out on real experience and asked Robert if the job offer was still on. It was, and I left college to work for Durell. I didn't actually make the tea – that was a joke by one of the *Crash* reviewers – but I did start off on a very low wage as I was still learning assembly. My first project was a game called *Death Pit* for the Spectrum, which was also being developed by two other in-house programmers for the Amstrad and BBC Micro."

» *Saboteur*'s 'NEAR' item detection mechanic allows the Ninja to locate a hidden knife.



» Failing to clear this gap wouldn't cost the Ninja energy, but it would waste precious time.

» *Saboteur*'s Ninja scales the docks of an enemy stronghold having arrived by dinghy at night.

"There was no conscious decision to avoid violence, but I did want the ninja to use skill; otherwise I would have given him a gun"

Clive Townsend

Like his earlier coin-op clones, Clive's Spectrum *Death Pit* was destined not to be published, although the experience he gained from these projects would be applied to a promising demo with the code-name *Saboteur*. "My version of *Death Pit* was virtually complete on the Spectrum but didn't really seem as 'classy' as Durell's other products. Mike Richardson's games all had a certain polish that was hard to compete with. The BBC version was also canned, and the Amstrad version was re-written from scratch by Simon Francis. At least my loading screen was used for the Amstrad version! As I started on *Saboteur* while working on *Death Pit* there were definitely similarities in the way the code was written. The *Death Pit* code wasn't actually copied, but I certainly learned some techniques from it, such as building up layers of graphics off-screen to avoid visible flicker."

Clive's *Saboteur* demo was informed by a passion for the martial arts, a certain cinematic super-spy and above all ninjas – and this last influence would later shape the levels and loading screen of the fully-fledged game that would evolve from the young designer's proof of concept. "The Eighties saw a huge explosion in ninja films and I was a big fan. To this day, I still have a load of them on VHS. When my girlfriend and I bought two black cats I named mine Jotaro after the protagonist in *The Ninja Wars*. When I started on *Saboteur*, I really didn't know what the whole game would look like – I just let it evolve as I had ideas. But many of the ideas came from ninja films, *James Bond*, and an interest in spies and martial arts. It was only ▶

SABOTEUR 101

■ A platformer that demands fighting, problem solving and stealth manoeuvres, *Saboteur* sets the task of guiding a ninja through an enemy base, finding a disk, planting a bomb and then escaping by helicopter. Enemy soldiers, computer-controlled doors and motion-guided lasers make the mission even harder.

» Clive is currently focused on his *Saboteur* update but might remake *Saboteur 2* next.

IN THE KNOW

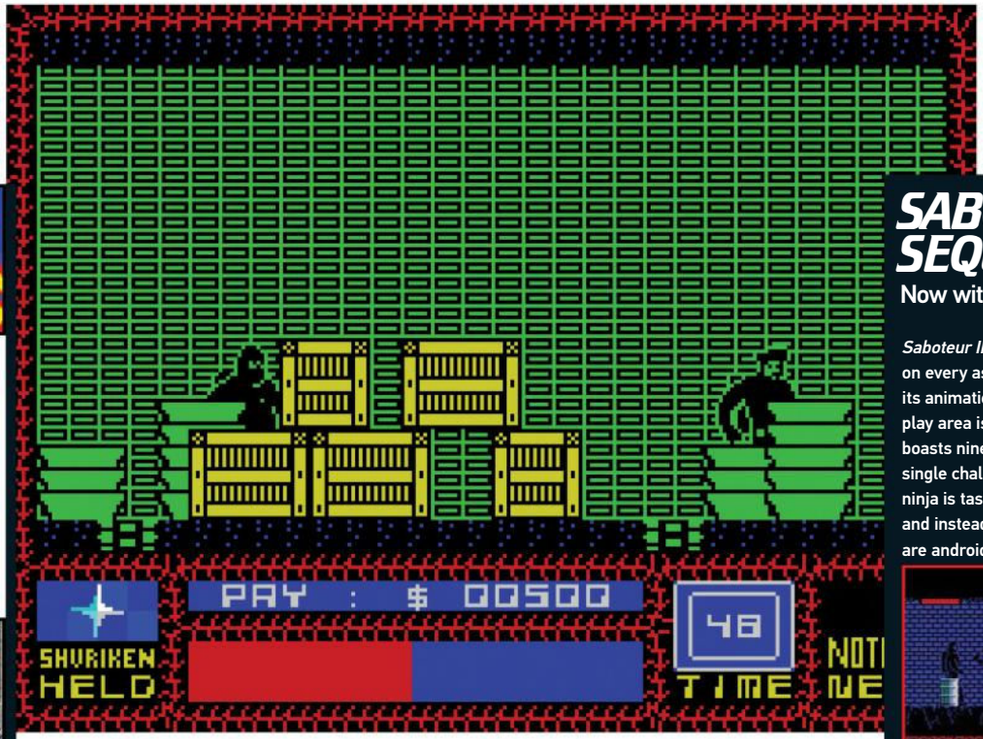
» **PUBLISHER:** Durell
» **DEVELOPER:** Clive Townsend
» **RELEASED:** 1985
» **PLATFORM:** Various
» **PLATFORM:** Platformer / Beat-'em-up

DEVELOPER HIGHLIGHTS

SABOTEUR
SYSTEM: Spectrum
YEAR: 1985

SABOTEUR II
SYSTEM: Spectrum
YEAR: 1987

HOT POTATO! (PICTURED)
SYSTEM: Game Boy Advance
YEAR: 2001



» The stealthy Ninja silently approaches an enemy soldier he plans to take out from behind.

SABOTEUR'S SEQUEL

Now with more missions!

Saboteur II: Avenging Angel **improves on every aspect of the original game; its animation is much more fluid, its play area is more expansive and it boasts nine missions to *Saboteur*'s single challenge. *Saboteur II*'s female ninja is tasked with far more collecting, and instead of guards and dogs her foes are androids and pumas!**

▶ recently that I realised that Eric Van Lustbader's book, *The Ninja*, had influenced *Saboteur*'s map design. In the book there's a fight on the top-floor of an almost-finished skyscraper. That must have subconsciously influenced my level design for the girders and stanchions at the top of the *Saboteur* building. And I can't remember exactly how it happened, but you may notice that the loading screen was 'inspired by' one of the Cannon ninja films…"

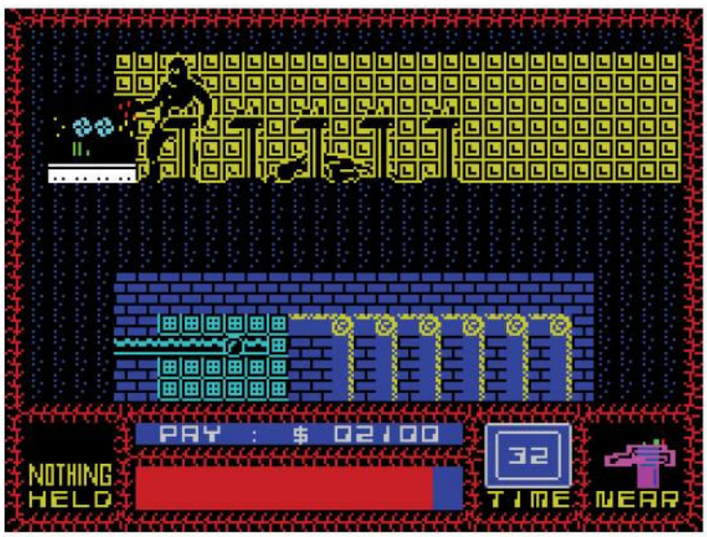
Long before even considering levels or a loading screen, though, Clive had the small matter of working out how to make his ninja demo scroll smoothly. The solution came when Robert White suggested making *Saboteur* a flick-screen title, which subsequently provided Clive with several bonuses and just one glitch to work around. "My original demo had a full-screen colour scrolling background, but wasn't smooth enough to be playable. Even scrolling eight pixels at a time to avoid colour clash didn't solve the problem. Robert's excellent idea instantly solved this – and had hidden benefits, which I didn't realise until further on in the development process. There was only ever *one* guard in the whole game. As you switched screen I effectively 'paged' the guard's animation data in and out. Although the AI code for the guard was fairly basic, this made it much more efficient. And there was only one dog too. I used the same process with the dog's data but didn't have room to store the direction flag. If you killed a dog you might come back later to find it facing the opposite way. I'm sure I could have freed up a few bits somewhere, but instead chose to re-draw the dead dog into a symmetrical pose. This hid the problem but also gave the dog a very undignified splatted look!"

Although with Robert's help Clive's *Saboteur* had transitioned from demo to full-blown project, the youthful developer was still expected to write his game alone and with the most basic of coding set-ups. "Games in those days were much smaller than modern games so could be developed almost single-handedly, and *Saboteur* was created on an actual Spectrum. I'd load in my Zeus assembler and a piece of source code, assemble it, and save the object code to tape. Then I'd load all my graphics, data and code in from tape and test the game. After

noting down any problems or bugs I'd then re-load my assembler and some source again. It was a very long-winded approach, which meant firstly that the game took longer to develop, but ultimately meant that I didn't have the complete source code all in one place. This prevented me from making the code as neat as it could have been – with a better development system I could have added a lot more to the game."

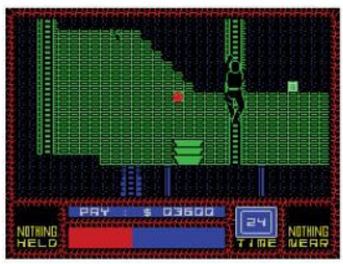
The tools available for creating *Saboteur*'s graphics were just as rudimentary, and so Clive found himself drawing his game's heroic ninja, ruthless foes and sprawling levels on graph paper and translating their designs into hexadecimal values. "[It was] squared paper and hex values all the way! The ninja animations were just drawn by hand, but the dog animation frames were based on tracings from one of Eadweard Muybridge's books showing still photos of animals as they moved. He was a pioneer in the world of photography and created images that helped me out over 100 years later!"

When it came to gauging *Saboteur*'s gameplay, Clive favoured skill over mindless violence, and perhaps taking his lead from Eadweard Muybridge developed a pioneering stealth mechanic for his game. "There was no conscious decision to avoid violence – most of the ninja films I was watching were a lot more violent! But I did want the ninja to be able to use skill instead of just brute force; otherwise I would have given him a gun. The code for sneaking up on guards was incredibly simple. If you were on your fourth running frame I made sure the guard was facing you. To this day, I'm amazed that a tiny bit of code had a dramatic effect on the gameplay and helped to usher in the sneak-'em-up genre!"



» Having dispatched a guard, the Ninja sets about hacking a computer that controls an exit.

In keeping with his emphasis on skilful gameplay, Clive armed his ninja with just a single shuriken and only limited opportunity to collect additional weapons leaving the warrior to rely largely on unarmed martial arts combat, although the designer toned down an early thought of even more restrictive weaponry usage. "One of the ideas I toyed with was to have metal detectors in certain parts of the building so you weren't able to carry metal items in some areas. I thought maybe that you'd start with nothing and have to find everything within the building, but it didn't feel very nice to start unarmed. The metal detector idea never really happened, although carrying a single item was already working so it ended up stayed in."



» A laser weapon firing into a tight spot provides a test of the Ninja's timing and agility.

Clive's idea of having his ninja begin with only a single shuriken soon evolved into a restriction on his hero carrying just one item at a time of any sort. The developer also added a complimentary mechanic to display hidden weaponry and items when walked past in a 'NEAR' box at the foot of the screen. "I hadn't played any similar games so I didn't have anything to compare with, but it seemed the obvious way for the gameplay mechanic to work. It also kept things simple – you didn't have to cycle through a load of inventory to find the item you needed. I had originally planed to have a wider variety of items and use them to create more puzzles, but as memory dwindled the extra items – and the puzzles – were sadly left out."

An equally brilliant mechanic followed as Clive devised an energy bar that recharged when his ninja rested – albeit at the cost of losing precious seconds of mission time. "I did experiment with lives at one point, but it detracted from the realism. Having an energy bar gave me more precision when inflicting ▶

CONVERSION CAPERS

How the other versions of Saboteur stack up

AMSTRAD CPC

■ Visually identical to the Spectrum *Saboteur*, besides sporting a more colourful weapons panel, the CPC version of *Saboteur* sounds better but has slightly slower animation and very slight but noticeable pauses between rooms. Crucially, though, the Amstrad port perfectly replicates the original's gameplay.

COMMODORE 64

■ Apart from minor concessions to its colour palette, the C64's *Saboteur* looks very similar to the game it's emulating – and its more muted colours actually add to the game's realism. It runs a little faster, which is no bad thing, and the original's gameplay is nicely reproduced on Commodore's flagship system.

COMMODORE PLUS/4

■ The Commodore Plus/4 boasts the fastest version of *Saboteur*, including a speedy replenishment of the game's energy bar. The Plus/4 adaptation is an accurate one, right down to its minimal sound effects. As with its C64 counterpart, the Plus/4 *Saboteur* is rendered in muted colours, which work well.

COMMODORE 16

■ Given the C16's memory constraints, it's a miracle that any form of *Saboteur* was attempted on the machine let alone pulled off. The end result has severely stripped back graphics, smaller playfields and much-simplified gameplay. It's not a bad game by any means, but it's not a close conversion either.

BITMAP NINJAS

More great gaming ninjas

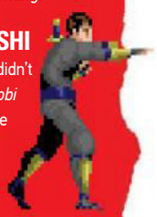
GOEMON

■ Based on Ishikawa Goemon, Konami's ninja debuted in *Mr Goemon*. His largely Japan-only outings also include brawlers, RPGs, a racer and a puzzler. Goemon's world is an ancient Japan with futuristic tech, which explains his domestic success.

ARMAKUNI

■ Star of the *Last Ninja* trilogy, Armakuni's missions see him battling through isometric renditions of idyllic settings. Besides his martial arts prowess, the *Last Ninja* games test Armakuni's guile and agility with object-based puzzles and tricky platforming.

JOE MUSASHI



■ Although Joe didn't front every *Shinobi* game he was the leading man for the majority of Sega's scrolling brawler/platformers. Joe's outings are defined by his favoured range weapon – a throwing star – but he also carries a sword in some series entries and is well-versed in ninja magic.

STRIDER HIRYU

■ Like George Lucas did with Jedi, the design group that created Strider Hiryu took the concept of the ninja in an unreal and fantastic direction. Hiryu can pull off breathtaking acrobatics and impossible acts of agility – plus he can perform lightning-fast attacks with his sword.

"I did experiment with lives, but it detracted from the realism. Having an energy bar gave me more precision when inflicting damage on the character"

Clive Townsend

▶ damage on the character, so he could receive different damage based on how far he'd fallen, the difficulty level and so on. By having the energy bar refill when he rested, the game created a tension for the player – do they stop and rest while the clock ticks away or keep running and risk being killed by the next enemy?"

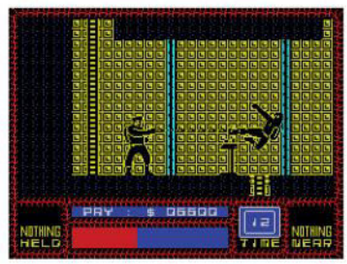
While Clive's enemy guards were certainly not to be underestimated, memory limitations did unintentionally give his game's ninja a solid defence against their assaults, but memory shortages also limited the hero to just one kick and one punch. "I'd planned to add more moves at some point, but memory was tight and other things took priority, such as background graphics and the data for the rooms themselves. In the end, I had to make the guards bodies out of the ninja body but with a different head! Ultimately, this meant that the guards didn't get a leg-sweep animation, so the ninja could just crouch down and they couldn't attack him…"

Despite memory restraints, Clive still managed to squeeze a cinematic intro and ending into his game where his ninja arrived pre-game by dinghy under cover of darkness and escaped by helicopter on completion of his mission. "I think every game should have a beginning and an end. Having been disappointed by games like *Adventure* just saying 'Game Over' when completed, I wanted to have something memorable at the end. The initial dinghy scene was just an extension to starting at the pier, and enabled me to have an 'intro' at the expense of only a few bytes of extra graphics."

As well as rounding off *Saboteur* aesthetically, Clive also fine-tuned the challenge posed by his game based on feedback, which resulted in the option of playing *Saboteur* at nine different difficulty levels. "Playtesting wasn't as rigorous in those days, but I did ask some of my friends, Matt and Rich, to play the game and tweaked the difficulty based on their feedback. Once I'd figured out the timings for the hardest difficulty level it was then simple to create the easier levels. The whole process was quite organic. I've heard of sculptors describing their job as chipping away all the unwanted bits of stone to reveal the statue inside. It was a bit like that really. Once you knew your way around the map you could complete the game in a few minutes, so the whole gaming experience involved learning your way around and possibly mapping the game yourself. If you got the disk, then killed all the guards, then planted the bomb and escaped you received the maximum score. One thing I should have done was add a time bonus when you completed the game, so that there was more of a reason to re-play the levels and compare your route with other players."

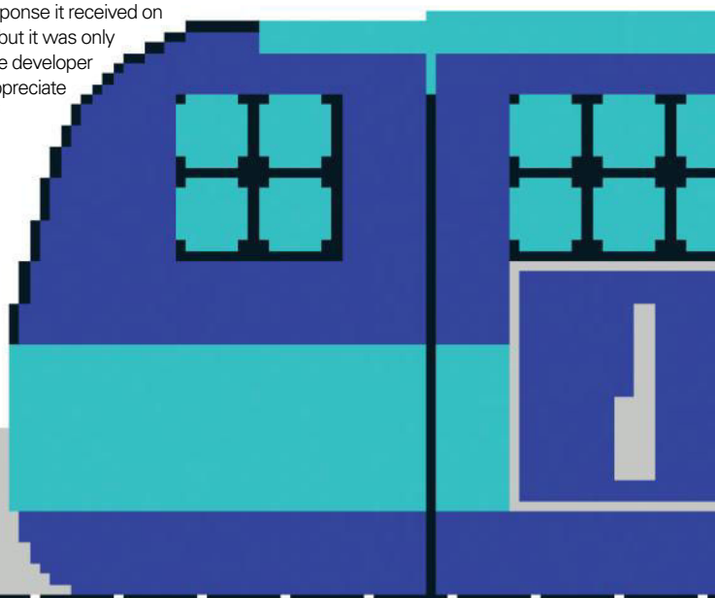
Time bonuses aside, Clive was happy with his completed game and also the response it received on its release, but it was only later that the developer began to appreciate the scale of *Saboteur*'s

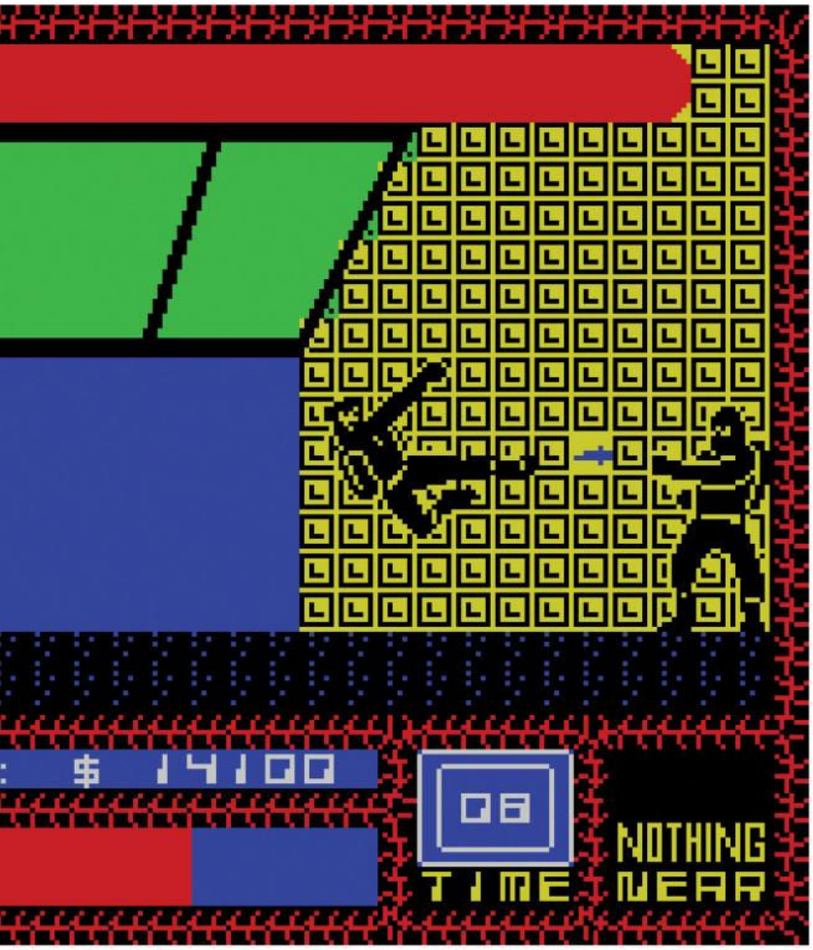
» An enemy soldier discovers that he shouldn't have brought a flying kick to a knife fight.

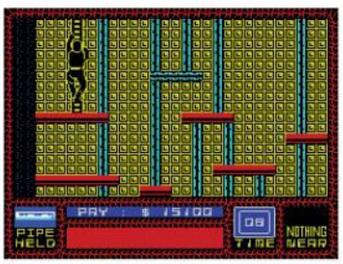


» A misjudged decision sees the Ninja leap into gunfire when he should have ducked.

» Against the clock, the Ninja races from an underground train the second it stops.

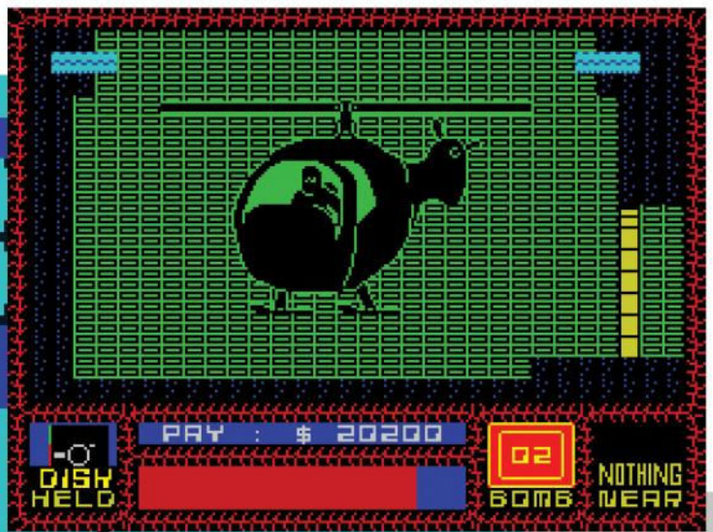






» Although part-brawler, part-platformer, some of *Saboteur*'s levels are strictly platforming.

» It's awkward to do, but a well-aimed pipe can stop a guard dog attacking the Ninja.



» With seconds to spare before the enemy base explodes, the Ninja takes to the air.

success. "The response from both the magazines and the public was awesome. *Crash* magazine awarded it 93% and their prestigious 'Crash Smash'. I was naturally very pleased, but had no idea how many copies an average game would sell, so it was difficult to know how well the game was selling. I was actually woken up one morning to be told that I would be on TV in 15 minutes, so I stumbled to the office and was interviewed by some BBC news teams. It wasn't until then that I realised how popular the game was!"

Far from basking in glory, Clive instead set to work on converting his Spectrum hit to the Amstrad, which proved less than straightforward due to the coding techniques he had used to create the original. "It was a nightmare! I was working entirely with the object code – not the actual source code. So I had to insert new code into the middle of old routines. Most of the game logic was the same as the Amstrad – as they're both Z80 – but several other bits had to be changed, such as drawing to the screen, checking keys and so on. The Amstrad did have more available memory so that helped – in places where the Amstrad code was bigger than the Spectrum code I could replace the original code with a jump out to the new routine, which then jumped back in when it was done..."

Visually faithful C64 and Plus/4 versions of *Saboteur* followed, and a stripped-back adaptation was somehow coaxed out of the memory-light C16, although Clive didn't have any direct involvement in Branko Spoljaric's Commodore conversions. "I didn't actually see the C64 version until it was done, but it used my character and background graphics so it looked very similar. My code wasn't actually used though, so they probably didn't compress the maps in the same way I did. It would have made their lives easier if I could have given them some source code to work with – but cross-platform development wasn't as organised in those days! The C16 version was brilliant – it certainly brought a smile to my face. It looked very different to all the other versions due to very limited available memory, but I applauded the skills it took to cram everything in."

Asked for his thoughts on *Saboteur* now, Clive expresses satisfaction with his game and reveals an update is imminent, which he hopes will appeal as much to the youth of today as the original did to the children of the Eighties. "Watching people of all ages playing *Saboteur* on the Spectrum at last year's revival was very satisfying. People new to the game seemed to have as much fun as those who'd played the game 30 years ago, although there were some kids who were flummoxed by the concept of pressing keys on a keyboard. This December marks the 30th anniversary of *Saboteur* being released in 1985, and I'm working on a remake, which will give them a chance to play the game on their phones and bring *Saboteur* to a whole new generation."

Many thanks to Clive Townsend for sharing his memories about the creation of *Saboteur*.

SABOTEUR 2015

Clive Townsend on his upcoming Saboteur update

"There are a few things that have bugged me [about *Saboteur*] for three decades. When you quit the game a 'SEPUKU' message comes up – spelled incorrectly with only one 'P'. Some of the drainage pipes in the underground sewers don't match up with the rooms below, and I'd planned to have water dripping from some of the pipes – the graphics are actually in the game but I never wrote the code to display them. You can also complete the game by running straight to the helicopter. You shouldn't really be told that your mission was successful as you haven't done the mission! The remake will address these issues and add more to the game, both in map size and gameplay. There are still races against time but also tests of your agility, problem-solving and yet more combat. There's more plot to reveal between the stories of *Saboteur* and *Saboteur 2* so you'll get to find out why *Saboteur 2* starts with your ninja being 'fatally wounded in his last mission'. The online version for PC and Mac will be ready in December 2015. The Android phone/tablet and Windows phone versions will probably be next, followed by the iPhone and iPad versions."

You can play the online version of Clive's update at clivetownsend.com.

The Chronicles of Midnight

Many gamers first encountered Luxor the Moonprince standing at the Tower Of The Moon, while sitting at their computers, amazed at the seemingly open world stretching out before them. Martyn Carroll charts the history of The Lords Of Midnight series, talking to those involved and reflecting on the brilliance of its creator, the late Mike Singleton

» Mike Singleton, creator of the *Midnight* trilogy, who sadly passed away in 2012.

Who are the Lords Of Midnight? That was the question posed to readers of the March 1984 issue of *Computer & Video Games* magazine. Besides the question, the black-and-white teaser advert featured nothing but an image of a company of riders on horseback. It was sombre yet striking.

The ad was updated over later issues. "The first Spectrum game to feature landscaping!" was added in April. Landscaping? Were those horses pulling ploughs? "Not an adventure," explained the ad in May. "The world's first EPIC game with 32,000 possible panoramic views." The excitement peaked. Just who was making these claims? That question was easier to answer. *C&VG* included an index of advertisers at the back of the mag and the ads were booked by one Beyond Software.

Beyond was a fledgling software house established by *C&VG* publisher EMAP and headed up by the magazine's launch editor Terry Pratt. It had published several titles on various formats without a huge degree of success and *The Lords Of Midnight* was intended to change that. The job of developing a hit, flagship game fell to Mike Singleton, a teacher-turned-programmer from Merseyside. Mike was another person who would be familiar to *C&VG* readers as a number of his games had been published in the mag as type-ins and Terry was quick to get him on-board at Beyond. "Mike and I bounced ideas off each other a lot while I was editing *C&VG* and he was putting projects together for the magazine. When we determined to launch Beyond, Mike was my go-to guy as he was original and incredibly creative. *The Lords Of Midnight* was pretty well-formed in Mike's head as he had all the programming and maths logic already in place."

Mike began by implementing the 'landscaping' technique as a proof of concept. He had seen *The Hobbit* adventure game and was amazed at how long it took to 'draw' the location graphics on screen. His system was able to display an individual scene – featuring mountains, forests, ▶

» Magical items can be discovered, like the Cup Of Dreams.

» The Ice Fear is cold as Morkin approaches the Tower Of Doom.

Tolkien Liberties

Games that plundered the fantasy world of Middle Earth

AKALABETH 1979

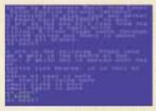
■ Richard Garriott's first game was initially self-published for the Apple II and served as the foundation for the *Ultima* series. Strongly inspired by Tolkien, the name of the game is derived from Akallabeth, one of the stories that makes up *The Silmarillion*.

SHADOWFAX 1982

■ Originally developed for the VIC-20 (pictured), this effort from Mike Singleton was his first to lean on Tolkien. Playing as Gandalf you rode into battle against the Black Riders. The animation of the horses was great, although the game itself was simple.

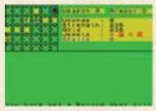
ADVENTURE QUEST 1983

■ This was the second of Level 9's *Middle Earth* trilogy, so called as the adventures took place in Tolkien's world. In this one your quest was to find and defeat a dark lord. Sound familiar? The games were later re-released as the *Jewels Of Darkness* trilogy.



MORIA 1983

■ The underworld of Moria was brought to life on the Spectrum and Oric as a dull grid filled with ASCII characters. The game was about as appealing as that sounds. Every so often you'd find some treasure or awaken a beastie.



BORED OF THE RINGS 1985

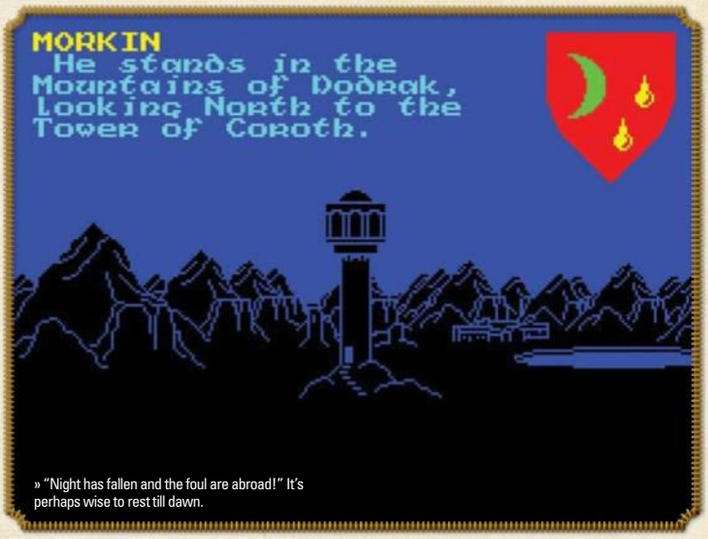
■ Taking its name from the parody novel, this adventure was far more enjoyable that the official *LOTR* game from Melbourne House. Its waggish author Fergus McNeill would follow this up with a prequel, *The Boggit*, and later *Kingdom O' Magic* for the PC.

▶ buildings and other features – in a finger snap. Clever programming meant that each location occupied just two bits of memory, so he could include not just hundreds but *thousands* of different locations – almost 4,000 in fact. And in each location the player could turn in eight compass points, resulting in the extraordinary 32,000 views claim. What's more it was possible to take control of up to 32 characters and move them in turn. Landscaping enabled Mike to create vast lands filled with wonderful vistas and cram them all into the Spectrum's meagre 48K memory.

With the technique proven, Mike was commissioned to produce the game for Beyond. Terry travelled up to the Wirral to meet Mike and they spent many hours discussing the game over pints in the pub. "Mike was thoroughly good company," says Terry. "From memory the talks seemed vital to the process but I suspect were mainly me buying beer, Mike expounding his ideas and both of us feeling better as a result." During his landscaping tests Mike noted that the colours blue and white worked well together on the Spectrum and this prompted the creation of a snow-covered world beneath a clear winter sky. A detailed backstory was then written to fit the setting. Mike was strongly inspired by Tolkien and his narrative featured warring factions and daring acts of heroism. The requisite menace was Doomdark, an evil sorcerer who had inflicted perpetual winter on the once pleasant land of Midnight. Aiming to defeat Doomdark once and for all were the Lords Of The Free, led by Prince Luxor and his son Morkin.

> "MIKE WAS MY GO-TO GUY AS HE WAS STUNNINGLY ORIGINAL AND INCREDIBLY CREATIVE"
>
> Terry Pratt

Mike expanded this premise into a five-chapter story which was bundled with the game. He also wrote the playing guide which detailed the game's mechanics while simultaneously optimising his code to make it fit into memory without sacrificing any key features. The title was due to launch in May but Mike spent seven months working on the game and it eventually arrived in late-summer. "Mike was late getting games to the plate," says Terry. "The *Lords Of Midnight* was a long time finessing and launched a lot later than planned.



» "Night has fallen and the foul are abroad!" It's perhaps wise to rest till dawn.

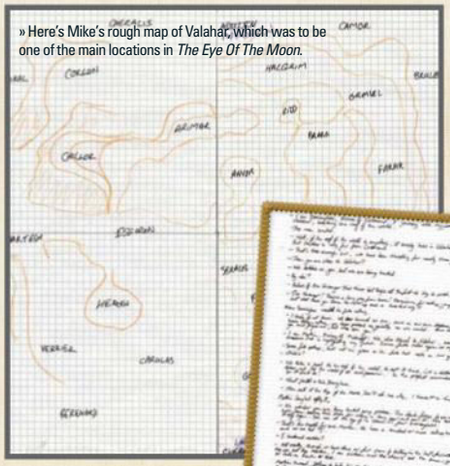
The Eye Re-Opens

How Mike planned to bring the series to a close

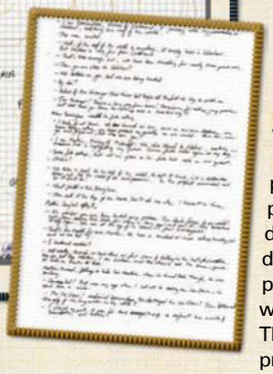
When Mike returned to *The Eye Of The Moon* in 2011 he created a design document for the game featuring a new backstory. Instead of setting the game in the Blood March as originally planned, the focus was to be Valahar, a mountainous region lying west of Midnight.

"There was very little from the *The Eye Of The Moon* in the concept document," explains collaborator Chris Wild. "The main reason for this is that much of it had been used in *The Citadel*. So Mike created a new story in order to allow a new game to be created. Pretty much all of the ideas for the new instalment came from him. By the time he first spoke to me, it was fully-formed in his head and he had most of the novella planned out.

The document includes pages of the novella and an outline of the story, revealing how a new threat is plotting to resurrect Doomdark, Shareth and Boroth. Mike wrote: "The idea is to make this last game of the series a grand finale, with new landscape and gameplay features, new enemies and new friends, but also the potential of Midnight being assaulted by all its enemies too. And at the same time the land of Midnight returns firmly to the gameplay, which is fitting for the end of the saga, not to mention satisfying for old fans." You can view the document at bit.ly/EyeMoon.



» Here's Mike's rough map of Valahar, which was to be one of the main locations in *The Eye Of The Moon*.



» Mike wrote his stories by hand. Here's a previously unseen excerpt from *The Eye Of The Moon* story.

He wasn't deliberately striving for perfection ahead of commercial principles. We both had a lot to lose – Beyond was a new company and Mike was incentivised by royalties, so we were both trusting each other. However, most programmers are optimists. Mike believed it would come together faster than it did and in the end it was later than we hoped. It was a success but I suspect now that it would have been more of an instant phenomenon had it happened to plan. We were learning in an emerging industry where the recipe was still far from clear."

The Lords Of Midnight was a hit when it debuted, peaking at second place on the Spectrum sales chart in September 1984. Beyond's marketing had built up the hype and the reviews justified it – and not just in EMAP-published titles. It was a 'Smash' in *Crash* while *Personal Computer Games* awarded it 10/10, calling it "*The* game for the Spectrum." Beyond believed it would be a defining title on other platforms too and farmed out conversions for the C64 and Amstrad CPC.

The C64 version was handed to Incentive Software and programmed by 'Tag and The Kid', otherwise known as Anthony Taglione and Malcolm Hellon. "Tag and I went up to see Mike," recalls Malcolm. "After chatting to him over a couple of days and agreeing what we all wanted, we went back to Reading to start the C64 conversion. We added some embellishments – a wider panorama to suit the C64 screen and a moving Moon and Sun done using hardware sprites. It took us about three months and was successful. I recall that Beyond was impressed with the sales."

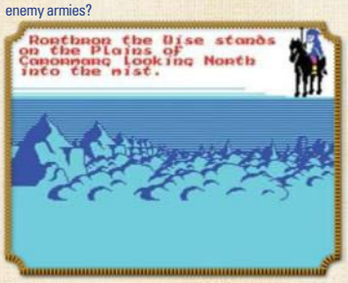
The CPC version was a straight port of the Spectrum original programmed by Rick Brown. Mike didn't handle the conversions, despite having coded for various processors in the past, as he was working on the follow-up to *Lords*. The original game's manual had promised a *Midnight* trilogy, you see.

With the landscaping system a proven success it should have been quick and easy to create new adventures. That was the expectation anyway. Previews for the original game mentioned that the follow-ups – *Doomdark's Revenge* and *The Eye Of The Moon* – would both be out in the autumn of 1984! Beyond certainly believed that to be the plan. "I expected we'd get a trilogy ▶

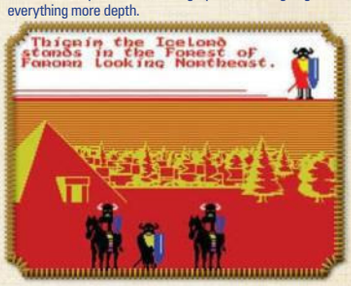
» The well-received CPC version was published by Amsoft back in 1985.

» Tag and the Kid's Commodore version introduced a rising and setting sun.

» A strange mist sweeps the landscape. Does it conceal enemy armies?



» The follow-up featured better graphical shading to give everything more depth.



out a lot faster than we did," says Terry Pratt. "I probably thought of it in terms of two more trips to the Wirral."

Mike had other plans. Doomdark's *Revenge* utilised the same 'look and move' control scheme of the original, but the scenery graphics were redone and new geographical elements were added including temples, palaces and cities. The map was almost 60 per cent bigger with a total of 6,144 locations and it was possible to command up to 128 characters, each of whom now had traits which affected whether you could recruit them. And you had to find them first – characters now moved around the map rather than waiting to be recruited like before. Despite all these new elements Mike still only had 48K of headroom so his code had to be rationalised to make it fit. A new backstory was written, revealing how Midnight thaws following Doomdark's death. However, in the Icemark, a desolate land to the north of Midnight, Doomdark's daughter Shareth lures Luxor to war by capturing Morkin.

The game arrived in the winter, after six months of work, to critical acclaim. Reviews acknowledged that the game was more difficult than its predecessor, due to the random nature of the AI. Speaking to us in 2004, Mike admits that the AI was a divisive addition: "With hindsight, the way the characters in *Doomdark's Revenge* made and broke alliances of their own accord, and moved about the map on their own quests, made things too unpredictable for the sort of strategic planning a player could do in *Lords*. Perhaps some better feedback to the player on what was actually going on in the background would have made this feature really work. At the time of release, though, I was convinced that it was a improvement over the original."

"At the time of release I was convinced that the sequel was a significant improvement over the original"

Mike Singleton

The sequel sold well and it's reported that sales of both titles topped 200,000. Contributing to this figure were the multi-format releases for the C64 and CPC. The C64 version was developed by Stewart Peart who was ideal, having developed games for the Spectrum and C64. "I got the Spectrum source listing and set out to understand how it worked," he says. "I had a few calls with Mike to clarify some of the clever bits and he was very helpful. In particular the way that he stored the map and character states in a small table was clever. I had children and a day job so I used to work from nine at night to two in the morning. I knew the game at the time and regarded it as a classic."

By the time Stuart's conversion arrived in summer 1986, Spectrum owners should have already witnessed the concluding chapter in the saga, *The Eye of the Moon*. A preview in *Computer Gamer* magazine revealed a September 1985 release date, yet various factors resulted in the game being delayed over and over before disappearing entirely. The key contributor was the sale of Beyond to Telecomsoft in late-1985 and a change in the *Eye* contract which didn't work out in Mike's favour.

Mike revealed to us in 2011 that he did start work on the third game and his plans were more ambitious than ever. "*The Eye Of The Moon* was partly in development following *Doomdark's Revenge*," he said. "It was to have an even bigger map – 128-by-128 locations – and I planned for the complete game to feature 12 different kingdoms, with a subgame to win in each one. I'd also done quite a lot of work on new graphics, which would introduce more variety, so that, for example, each castle would look different to the other castles, allowing you to recognise a place by sight. I had also been working on introducing

Defenders Of The Free

The key characters who help defeat Doomdark in The Lords Of Midnight

LUXOR THE MOONPRINCE

■ Luxor leads the Free against Doomdark, using his ring to command Lords allied to him. To succeed he must approach and destroy the Citadel Of Ushgarak.

MORKIN

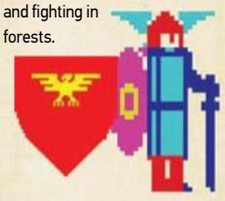
■ Luxor's son is part Free, part Fey. His quest is to stealthily travel north to the Tower Of Doom and locate the Ice Crown, Doomdark's source of power. This results in a quick victory.

RORTHRON THE WISE

■ Rorthron is one of Luxor's key allies, providing the prince with sound guidance. In the War Of The Solstice he proves to be an excellent guardian for Morkin on his quest for the Ice Crown.

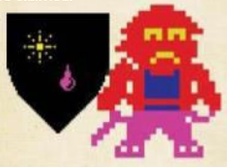
CORLETH THE FEY

■ Another close companion of Luxor, Corleth can recruit his fellow Fey lords in the battle against the evil Doomdark. As a Fey he has a clear advantage when travelling and fighting in forests.



FAWKRIN THE SKULKRIN

■ This devious critter aligns himself to Luxor in the game's novella. While other Skulkrin stand in your way, Fawkin can be recruited and is able to destroy the Ice Crown once it's claimed.



FARFLAME THE DRAGON LORD

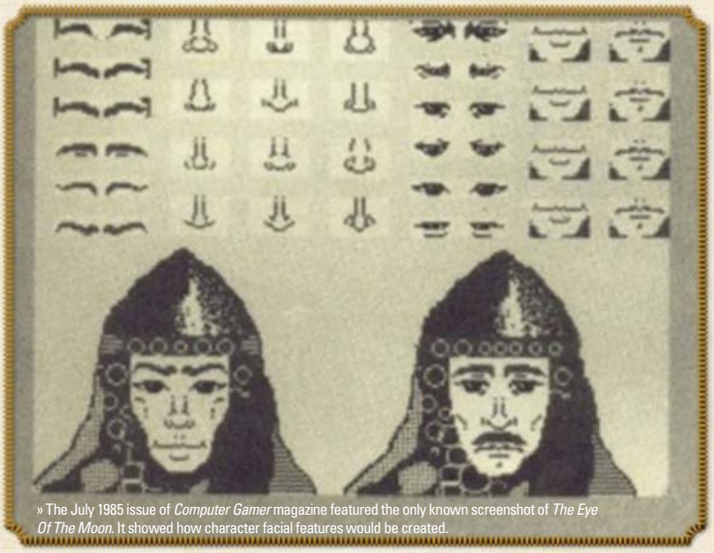
■ Not a man riding a dragon but the dragon itself. Once found in the Mountains Of Dodrak, Farflame proves to be a powerful ally. He is swift and strong and can destroy the Ice Crown.

colour into the landscape itself." Mike called this system 'Randscaping'. "I had the prototype Randscape graphics running and working. That is about as far as it went."

Having parted with Beyond Mike set up Maelstrom Games and busied himself with other projects over the next few years including *Dark Sceptre* and *Midwinter*. Midnight was out of sight but not out of mind.

A decade on from the release of *Doomdark's Revenge* Mike finally returned to Midnight. *The Lords Of Midnight III: The Citadel* was developed for the PC and published by Domark. Mike revealed the impetus behind *The Citadel* in a foreword to the game's manual: "I had always planned to write part III of the saga, but changes of publisher, demand for other projects, and new technology conspired against this for many years. Finally, with the advent of 32-bit processing power on the PC, the time seemed ripe for part III. Now we could make the landscape more real than ever, we could have real-time 3D action, we could deepen the personalities and relationships of the characters, we could have full sound and music. It was irresistible."

As Mike states, the third game was a radical update featuring real-time movement and 3D graphics. While he makes it sound like the PC tech of the era was a perfect fit for his vision, the development proved to be difficult and drawn out. Mike worked on the game with six other Maelstrom programmers including Jim Shaw. "I joined Maelstrom in January 1994 and a few months later *The Citadel*'s main programmer David Ollman left the company and I was given the job of finishing it off," recalls Jim. "This was daunting as I'd only been coding games for six months or so! When I took over the graphics engine was largely complete. There wasn't much game and we were up against our deadlines with Domark already, so Mike and I set about filling in the gameplay. I added dragons and boats, all the citadels, character traits, magical items and battle logic. Mike rewrote the character routing algorithms so they worked and also designed the state machine which motivated the characters. I fixed thousands of bugs and heaved the game over the line with Mike. In the end the game was available in Virgin Megastores and we were still working on it – we'd not been told it had been mastered! I went with Mike to Liverpool to buy a copy. Even with the stress and long hours it was a great game to work on. I think it's a good game, but possibly too different from the Spectrum games."

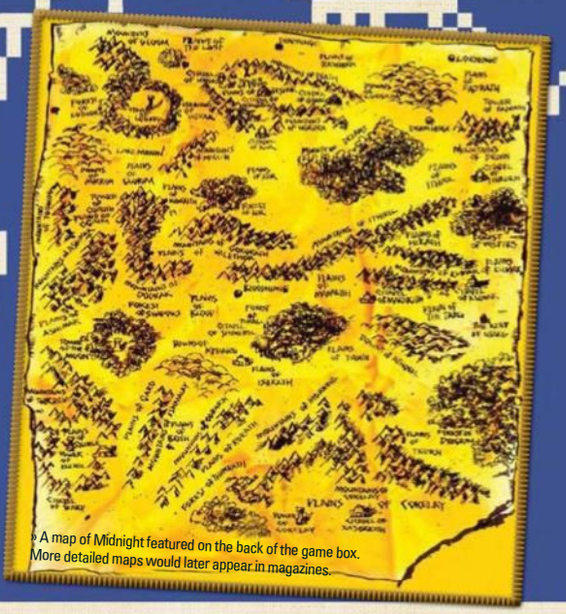


» The July 1985 issue of *Computer Gamer* magazine featured the only known screenshot of *The Eye Of The Moon*. It showed how character facial features would be created.

Richard Hewison helped test the game and remembers the difficulties of ironing out all ▶

THE UTARG OF UTARG

■ Located at the Keep Of Utarg, this warrior is the sole Targ character in the entire game. He commands an army of 1,000 riders and proves to be a valuable addition to Luxor's war party.



» A map of Midnight featured on the back of the game box. More detailed maps would later appear in magazines.

▶ the issues. "I was a big fan of the first two games and was determined that if I felt something wasn't right with the look, feel or behaviour of the game then I'd be very up front about it," he says. "Mike would often phone me up and go through my latest report. I was often questioning the general tactics used by the AI routines and this is when our chats would sometimes become a little heated. I think it's probably fair to say that Maelstrom was under a fair amount of pressure to deliver the game and I think that was possibly getting to Mike a little at that stage. I could tell he was passionate about the game and how it should play, but I suspect he was concerned that the game didn't slip again as I think it was already almost a year overdue when I got involved in early 1995."

Even with the delays Mike believed the game would have benefited from more development time. "I wasn't completely satisfied with it but I wasn't totally unhappy with it either," he told us previously. "Another six months work on it could have made it a lot better but at the time that wasn't feasible."

» The return of familiar characters helped boost the appeal of the third game.

» In-game maps made an appearance for the first time in *Citadel*.

"The Citadel was available in Virgin Megastores and we were still working on it – we'd not been told it had been mastered!"

Jim Shaw

The Citadel was set in the Blood March, the same warm lands where *The Eye Of The Moon* was supposed to take place. The search for the 'Eye', the mystical jewel of the title, also figures in the backstory to *The Citadel* as it's the reason why Luxor quests south before he is captured by the corrupt Boroth The Wolfheart. But according to Mike *The Citadel* was never intended to be the final chapter, but rather an instalment prior to the true conclusion that would always be *The Eye Of The Moon*.

The Eye lay dormant until 2011 when Mike began working on an update of the original game for phones and tablets. For this he collaborated with Chris Wild, a developer with a long association with the series having ported the first two games to the PC in the early-Nineties (these versions were included with *The Citadel*). As the pair discussed how best to update Lords for touchscreen devices Mike revealed that he'd returned to *The Eye Of The Moon*. Chris says: "I was thrilled when Mike dropped the bombshell that he had written some new material for the game, and that he thought it was ready for development. It suddenly changed the work that we were doing on *Lords* from being a remake to being a reawakening of the instalment, and a possible test bed of some of the technology that we would use to finally bring the lost chapter to the world. That the game might finally get developed and that Mike had entrusted me to collaborate with him on it, not just at a technological level, but at a story and design one too, was the thing of dreams. It felt like I was completing my apprenticeship."

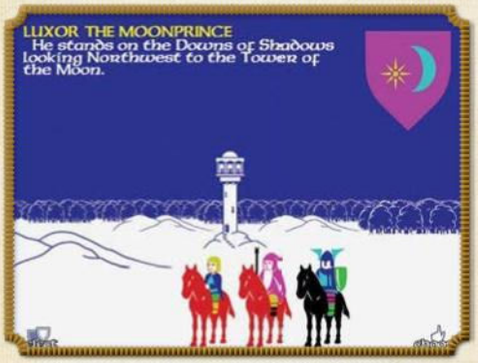
Shortly after they began working together Mike was diagnosed with cancer. They continued developing the game but progress was understandably slow. Mike passed away in October 2012. He was 61.

"As Mike wasn't able to transcribe all his ideas and story to paper, it means that we only really

» Chris Wild's Windows update of *Lords* led to the release of *The Midnight Engine* which allowed custom scenarios to be created.

have a skeleton of a game design and I don't think I can justify taking the game any further forward," admits Chris. "People who have waited for more than 30 years for Mike Singleton's *The Eye Of The Moon* don't really want to play Chris Wild's interpretation of [it]."

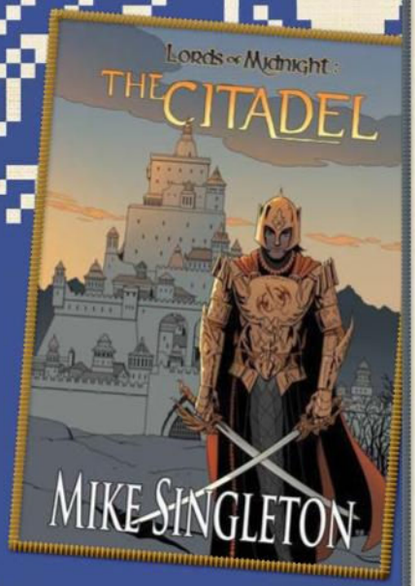
Chris decided to release their new version of *Lords* featuring the original's graphics and this was followed by an equally faithful version of *Doomdark's Revenge*. The games are now available on multiple modern devices and both serve as a fitting tribute to Mike. *The Eye Of The Moon* is no more but Chris has a long term goal of re-imagining *The Citadel* as a 2D, turn-based game. "I really want to develop *The Citadel* in the same style as the original two games. I like the idea that the much-maligned third instalment might get a better appreciated outing. I've done some work on the map, more as a musing than as a project. I'm not precious about it and would be happy to collaborate with others to make it happen."



» Faithful recreations of the first two games are available for various devices – see bit.ly/1RKeeic. Both are highly recommended.

The prospect of more *Midnight* is tantalising, particularly if it aligns *The Citadel* with the first two games. It's a project Mike would approve of as he was supportive and appreciative of the *Midnight* community and the various projects that stemmed from the world he created. "I feel very flattered, although it's the games themselves which are the real focus of interest," he said. "It's great to know that something I've done has brought so much enjoyment and inspiration to so many people."

Thanks to Chris Wild and Richard Hewison for their help.

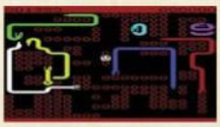


» Chris Wild has recently revised *The Citadel* novella featuring illustrations by Jure Rogelj. Will an update of the game itself follow?

The Hits Of Mike Singleton

More great games from Mister Midnight

SNAKE PIT 1983



■ The best of Mike's early games for Postern. Originally for the VIC-20 and later ported to the Commodore 64, Spectrum and others, you had to gobble up the dots while avoiding a nest of snakes. It was only the snakes' mouths you had to avoid so their writhing bodies became the walls of a moving maze.

TREACHERY 1984

■ This was a special *C&VG* type-in where the game board, playing pieces and keyboard overlay appeared in the mag alongside the listing itself. It was an involving spy caper for the Spectrum that proved so popular that versions for the Commodore 64 and BBC Micro later appeared.

QUAKE MINUS ONE 1986

■ Mike worked with his friend Warren Foulkes on this C64 title shortly after the release of *Doomdark's Revenge*. It looked nice but was rather inaccessible – a trait that plagued Mike's later games. It didn't help that the instructions were vague, so only the most persistent players would get anything out of it.

DARK SCEPTRE 1987

■ This fantasy game, based on one of Mike's play-by-mail titles, was a long time coming but was worth the wait. It featured massive graphics and utilised a masking technique to reduce colour clash on the Spectrum. The game itself was occasionally buggy, sometimes baffling but often brilliant.

STAR TREK: THE REBEL UNIVERSE 1987

■ Probably Mike's most troubled project, this strategy adventure game suffered multiple delays before materialising on the Atari ST – PC and C64 ports followed. Despite the problems the end result was surprisingly coherent and provided Trekkies with a long term challenge.

WAR IN MIDDLE EARTH 1988

■ The *Lords* games were clearly Tolkienesque so it was fitting that Mike should work on an official *Middle Earth* game. Fans of *Doomdark's Revenge* would recognise elements but the game was strategy-lite due to the plot following that of the book. More casual warmongers would still find a lot to like here.

MIDWINTER 1989

■ Midwinter sits alongside *The Lords of Midnight* as Mike's other masterpiece. Like *Lords* it was impossible to categorise, being an elegant mix of action, adventure, role-playing, strategy, espionage and exploration. It was the first of Mike's designs to really profit from the move to 16-bit machines.

Code Masters

Established by the Darling family 30 years ago, Codemasters' rapid rise as one of the UK's foremost gaming developers has been dizzying. David Crookes looks back over the key moments that put the publisher into top gear

» Codemasters budget games varied in quality from excellent to poor. *Miami Chase* wasn't one of its better games.

> "We created brand identity, brand differentiation & brand engagement all very quickly"
> Bruce Everiss

Richard and David Darling used to be everywhere: on television, the radio, in magazines and newspapers. They were young, ambitious and talented and as the faces of a new company operating in an exciting new industry, the media couldn't get enough of them.

With the help of their father, James, they had become the well-educated teenage directors of the games publisher and developer, Codemasters. But in promoting their games, operations director Bruce Everiss had a very clear plan. He encouraged the pair to accept scores of interviews, making them the face of the company they had set up.

"People identify with other people, not with products," Bruce says. "So we created brand identity, brand differentiation and brand engagement all very quickly, very efficiently and very cheaply using the brothers." It wasn't long before the lads were being dubbed 'whiz-kids' and yet, in interviews, it became clear that they were very much adults.

The brothers had grown close by the time they set up Codemasters in 1986. Although they were chalk and cheese in many respects – David, the elder by a year, proving to be the impulsive one while Richard was more considered – the pairing worked well. David was able to use his personality to get things done while Richard was able to rein his brother back if he got too carried away.

» *Grand Prix Simulator* was an early game created by the Oliver twins and one of Codemasters' many simulators.

Together, they had grown to love coding. At school in Vancouver, they had been taught to program using punch cards, and a friendly janitor also allowed them access to the computer room outside of hours. They used their father's Commodore PET at the weekends, creating a text version of *Dungeons & Dragons*. Meanwhile, school friend Michael Heibert, whose family had a VIC-20, joined them in their endeavours. The trio set up Darbert Computers and they made clones of games such as *Galaxian* and *Defender*.

Sent back to England to continue their education, the brothers bought a VIC-20 of their own, and they later created another company, called Galactic Software, with the help of Michael, who was still across the Atlantic. They placed a £70, half-page advert in the magazine *Popular Computing Weekly* which resulted in scores of orders being placed. Their efforts brought them to the attention of newly-formed publisher Mastertronic and the brothers' careers began to take off.

Quitting their education and creating a host of budget-priced games including *Space Walk*, *BMX Racers*, *Jungle Story*, *Orbitron*, *Sub Hunt* and *Pigs In Space*, the brothers' reputation grew. Helped by a self-written tool called The Games Creator which ended up being released commercially, Richard and David had made £200,000 between them by the time they were 16 and 17. In 1985 they also held a 50 per cent share in Mastertronic and yet they wanted to go at it alone.

The brothers sold their shares in Mastertronic in March 1986 and by October they had set up Codemasters with the help of their father. While

INSTANT EXPERT

- Richard and David had a nomadic childhood, living in Holland, Australia, Canada, France and the UK due to father James' work.
- **When they set up Galactic Software, the brothers initially duplicated and distributed the cassettes themselves.**
- The Darlings wrote or sourced 70 per cent of Mastertronic's software and prompted them to go it alone with Codemasters in 1986.
- **Richard wrote games for Codemasters but David preferred management.**
- The Oliver twins wrote *Dizzy* at the same time as working on *Pro Ski Simulator*, much to the Darling brothers' surprise.
- **David wore a T-shirt saying, "I told you so" when *Dizzy* didn't take off...**
- ...he presumably stopped wearing it when *Dizzy* became a hit months later.
- **Codemasters fleetingly considered making its own console. Someone the Darlings knew came up with some graphics chips but the company decided against it.**
- Former *Crash* editor Richard Eddy quit the mag to become Codemasters' PR.
- **A NES version of *Treasure Island Dizzy* was showcased at CES in 1990 to test the market.**
- The Aladdin Deck Enhancer, made in the US by Camerica, bypassed the NES' lockout 10NES chip.
- **Codemasters was awarded nearly £10m for loss of earnings following four years of court wrangling over the Game Genie.**
- Codemasters was a loyal developer to the original PlayStation.
- **In 2000, Codemasters was the UK's second fastest-growing company.**
- Codemasters is primarily a racing game studio today.

» *Crystal Kingdom Dizzy* was a massive graphical improvement over the earlier *Dizzy* games.

» *SAS Combat Simulator* was kind of like *Commando* and not like a combat simulator.

Elder sister Abigail did administrative work and managed the front desk in a small, windowless unit at the Beaumont Business Centre on a light industrial park in Banbury, James dealt with the business end and David and Richard were involved in creating new games.

The brothers shared one of the three rooms and James took another, all working among copious amounts of packing boxes and assorted clutter. Richard had been writing the racer, *BMX Simulator*, a follow-up to *BMX Racers* which he coded at Mastertronic. It was an instantly recognisable title which the Darlings were convinced would sell. "Budget games would allow us to grow because it gave us a larger audience and people would start to collect them," David says.

The remit, as the hits stacked up, was that the budget games had to be of full-price quality. "The process of development was the same for us because we didn't care about the price of the game – if it was a skiing game then we wanted to make the best skiing game and if it was a rally game, then the same applied," says David. "But if Ocean did a game like *Daley Thompson's Decathlon* then they'd have to pay for that license and they'd have to advertise and pay for that, so a lot of their money got used up in marketing."

In order to make money with such tight margins, though, Codemasters needed a lot of games. Knowing that they couldn't knock out so many themselves – not without a severe drop in quality – the Darlings looked to attract others on a freelance basis which not only avoided tying people into the company, but allowed them to test the wider talent base.

G-Man and *Danger Zone* were coded by Mike Clark, *Terra Cognita* was programmed by Stephen Curtis and *Super Robin Hood* was produced by the combined talents of Philip and Andrew Oliver, aka the Oliver twins, who met the Darlings at a trade show in Hammersmith. Peter Williamson coded *Super Stuntman* which was based on a concept by David, and Mark Baldock took Codemasters' soon-to-be-famed simulators down a popular, yet pointless, path when he wrote one based on fruit machines. The Oliver twins sprung up again with *Ghost Hunters*, while Gavin Raeburn created *Lazer Force* and Timothy R. Miller coded *ATV Simulator*. "Simulators appeared to sell ten times better," David said.

The number and quality of games at this time meant Codemasters was well on its way to becoming one of the UK's top publishers, and yet it wanted more and more talent. In mid-April 1987, Codemasters placed an advert in *Popular Computing Weekly* that not only flagged up its five number ones, but listed the conversions that it needed to be completed.

It was certainly an eye-opener. The publisher wanted *Grand Prix Simulator* ported from the Amstrad CPC to

DEFINING GAMES

Games which were Absolutely Brilliant

BMX SIMULATOR 1986

VARIOUS

■ Codemasters rode into life on the back of its first simulator, a game that indulged the Darlings' passion for BMXing and provided an instantly-recognisable title. Written by Richard Darling who had created *BMX Racers* for Mastertronic and retailing for £1.99, the player controlled tiny bikes around seven top-down viewed tracks strewn with old tyres, puddles and ramps, completing three laps within a time limit. It was one of many simulators created by Codemasters ranging from *Grand Prix Simulator*, *ATV Simulator* and *Pinball Simulator* to *Professional Ski Simulator*, *International Rugby Simulator* and *Super Tank Simulator*. They largely stopped when rival companies such as Alternative Software got in on the act.

DIZZY 1987

COMMODORE 64, AMSTRAD CPC, ZX SPECTRUM

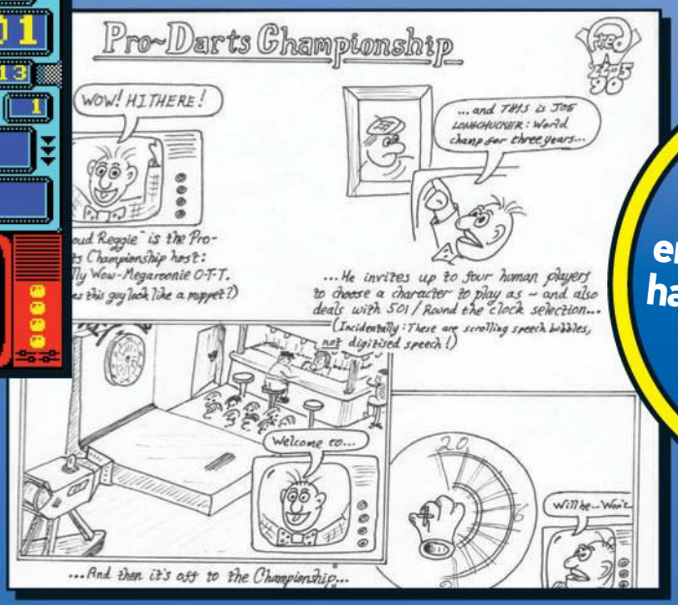
■ Dubbed 'Mr Easy-to-draw' by Codemasters, there was a great reluctance to release Philip and Andrew Oliver's game since it was a major departure from the other titles being made at the time. But the original puzzle-based adventure game became a sleeper hit, charting after six months and then refusing to budge. Demand and love for the original *Dizzy* led to a sequel, *Treasure Island Dizzy*, but then the floodgates opened. As well as a further seven games, there were also various spin-offs including *Fast Food*, *Kwik Snax* and *Bubble Dizzy*, not to mention specials produced for various magazines. An unreleased game, *Wonderland Dizzy*, was unearthed by the Olivers in 2015.

MICRO MACHINES 1991

VARIOUS

■ At the first Consumer Electronics Show, Codemasters had made a failed attempt to talk to Nintendo about creating licensed games and decided instead that it would find ways of doing it alone. Plug-through cartridges and the Aladdin Deck Enhancer, which bypassed the NES's security chip, provided solutions and allowed games such as Andrew Graham's wacky racer to be played. *Micro Machines* was breathtakingly fresh with multiple players controlling tiny vehicles, not only across pool tables and gardens but around eggs and waffles too. The sequel was also hugely innovative, not least for the multiplayer capabilities brought about by the Mega Drive's J-Cart – another innovation from Codemasters.

» Games such as *Wacky Darts* showed the merits of budget games – this could never have worked at full price.


Pro-Darts Championship
WOW! HI THERE!
...and THIS is JOE LOADHOOKER: World champ for three years...
...He invites up to four human players to choose a character to play as – and also deals with 501 / Round the Clock selection...
(Incidentally: These are scrolling speech bubbles, not digitised speech!)
Welcome to...
...And then it's off to the Championship...

"I used the boys' fame to ensure our products had exactly the right presence"
Bruce Everiss

» "I was working for Big Red Software and we were touting for business," says Fred Williams. "We sent this round to see if anyone wanted to fund our game."

the Spectrum, for instance, and it was willing to pay £3,000 for the trouble. It also needed *Transmuter* on the Atari and it was offering a willing coder £2,500. Codemasters promised that the successful completion of a conversion would lead to guaranteed work and so the number of young up-and-coming developers approaching the company for commissions boomed.

"We were striving to create the highest quality we could because we were programmers who loved games, so from a creative point of view, we wanted to create fantastic games," says David. It also helped enormously that Codemasters – and the Darlings – had become recognised across the industry.

In this respect, Bruce was doing a fantastic job. He had been in computing for eight years, first as the managing director of a computer store in Liverpool and then as operations director at Imagine Software. Shortly after Codemasters was set up, Bruce had decided to give the Darlings a call and invite himself down for an interview, offering to take on the responsibility for marketing. He was duly hired and one of his shrewdest moves was approaching the London PR company, Lynne Franks who got the young men on every children's weekend TV programme and in every newspaper colour supplement, often as the cover story.

"They were constantly recognised on the street, celebrities almost," Bruce says. "Once the boys were all over the national press, it made life incredibly easy with the specialist press, who I then had eating out of my hand. For instance there were three Sinclair magazines, each with a circulation of more than 100,000. I used the boys' fame to ensure our products had exactly the right presence in them all.

Yet the Darlings would soon have some internal competition as the face of Codemasters. In 1987, the Oliver twins had unveiled a new egg-shaped character which they called *Dizzy,* and they had placed it in an adventure that offered the same kind of puzzle-solving gameplay as age-old text-based equivalents. The Darlings weren't pleased but, with the game written, they agreed to publish it anyway.

They felt justified in their reluctance when the game failed to shift in large numbers. But then they ▶

BRIAN LARA CRICKET 1996

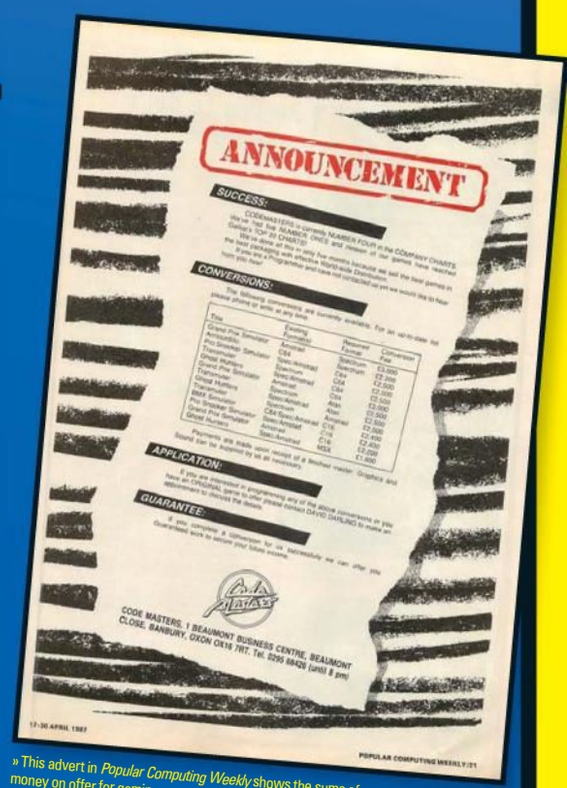
MEGA DRIVE, WINDOWS, AMIGA

■ Endorsed by the West-Indian cricketer Brian Lara, this game for up to four players made its debut for the PC in 1994 and it went on a long run of 13 years (with the franchise being known as *Shane Warne Cricket* Down Under). It was highly successful, with the Mega Drive release the following year topping the United Kingdom charts for a lengthy ten weeks. As well as allowing players access to all of the international sides, it impressed gamers with its faithful adaptation of the actual real-life game's systems, solid mechanics and realistic looks. While bowling entailed a bit of inevitable button mashing, the game also required a good level of skill from gamers in its other elements.

COLIN MCRAE RALLY 1998

WINDOWS, PLAYSTATION, GAME BOY COLOR

■ *TOCA Touring Car Championship* brought 3D realism to Codemasters' driving titles in 1997 and *Colin McRae Rally* built on the publisher's renewed drive for racing game success a year later. Influenced by *Sega Rally, Colin McRae Rally* was a simulation based on the year's World Rally Championship season and it featured 12 accurately-reproduced rally cars that could be raced across eight rallies (seven of them official). After four sequels, the franchise took a three-year hiatus, returning as *Colin McRae: Dirt* in 2007, the year the rally driver tragically died. The *Dirt* series has since continued ever since with the latest, the PS4 version of *Dirt Rally,* released in April this year.



» This advert in *Popular Computing Weekly* shows the sums of money on offer for gaming conversions.

CREATING THE COVERS

We chat to the man who penned early Codemasters artwork

Each of the tape inlays of Codemasters' 8-bit releases have a familiar look, allowing them to be instantly recognisable on the shelves of retailers. The Codemasters logo sat bottom-centre, the format was splashed in the top-right corner and white boxes with black text gave various snippets of information. The back of the boxes had a yellow, jagged splash and screenshots.

Alistair Graham created the cover for *Fantasy World Dizzy*, *Pub Trivia Simulator* and *Olli & Lisa 3* among others. "For *Dizzy*, the brief would have asked for certain elements in the game in question, so dragons and volcanoes, and I would always suggest items that I thought would be appropriate," he says.

"I used to present a quite-finished pencil rough to get the image approved before going to final colour. There weren't many cartoon covers being produced for computer games back then at the high level of drawing that I could deliver."

» Many gamers consider *Fantasy World* the best game in the *Dizzy* series. It's hard not to disagree.

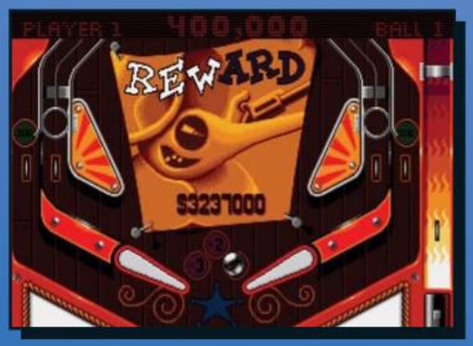
noticed that as time went on, the sales were not really dropping off. Instead they were growing. Fan mail was arriving at the office and there were lots of letters from passionate players who were stuck. *Dizzy* was becoming a sleeper hit and so Codemasters and the Oliver twins agreed it would be a good idea to make a sequel. *Treasure Island Dizzy* was released in 1988 and a best-selling franchise began to emerge.

They were good times. The publisher's bombardment of the trade press with full-page adverts in *CTW* magazine had made their mark with retailers, and Codemasters fought like crazy for every millimetre of shelf space, even providing free racking when a retailer bought its contents. It put the company in a strong position. "The Darlings knew exactly what they wanted and where the business was going," says Bruce. "They were tough negotiators and the interests of the business always came first."

Andy Payne, who formed the games production specialist The Producers in 1988, saw that at first hand. "I didn't really work with the Darlings brothers as such, back in the day but I did work with their father, who is a formidable man in so many ways," he says. "We used to supply the boxes and plastic trays for cassette and disc-based products and he was a hard negotiator. He knew what he wanted and he knew how to get it, but he was always fair."

James' diligence and determination was evident in 1990. Codemasters had released the Game Genie, a cheat system which was originally designed for the NES. Created over six months, it allowed players to modify game data in order to cheat or access functions that were not being used. Codemasters felt it would be a perfect way to enter the console market, allowing players complete control of other developers' games.

» *The Ultimate Stuntman* was developed by Codemasters and published by Camerica. A switch could be used for both NTSC and PAL compatibility.



» Created by Codemasters for the Mega Drive and PC, *Psycho Pinball* had four themed tables, including the Wild West.

But Nintendo had other ideas. It felt the Game Genie was contributing to copyright infringement and it sued Galoob, the seller of the device in the US and Canada. This was a setback for David and Richard's ambitions to enter the console market. They had been to CES in Las Vegas and noted how big Nintendo was becoming. They were keen to take a slice, yet Nintendo wouldn't talk to them.

James, however, believed that Codemasters had done nothing to infringe Nintendo's copyright. He said the team had been diligent in ensuring everything was above board and he was confident Nintendo would lose the case. He was right. Although Nintendo initially prevented Galoob from selling the cartridges, its case was ultimately unsuccessful in court. Codemasters responded by pumping more resources into the device and creating it for other consoles too. By the start of 1993, more than half of the company was devoted to developing the add-on and it proved to be a massive hit.

The Nineties was a period of great growth for Codemasters. Now operating from a converted farm in Warwickshire and expanding rapidly the company saw their games flying off the shelves. There were more *Dizzy* titles, notably *Fantasy World Dizzy* and *Magicland Dizzy* and while Codemasters was starting to leave its simulators behind, it was also delving into its back catalogue and reselling its older titles within four-game compilations that retailed at £2.99 and later £3.99.

Dizzy spin-offs such as *Kwik Snax*, fun cutesy titles including *Turbo The Tortoise* and a new character in Seymour kept the pennies rolling in but there were some mishaps along the way. The Codies got a bloody nose for releasing *Pro Boxing Simulator* when it became

TIMELINE

1986
- Codemasters is founded by brothers David and Richard Darling and father James.
- Based in a business park, it releases *BMX Simulator* and goes on to launch many other sport-based sims.

1987
- Dizzy makes his first appearance on the C64 Amstrad CPC and ZX Spectrum.
- Codemasters is so prolific and successful that its games make up 27 per cent of the weekly Gallup charts.

1988
- *Treasure Island Dizzy* is released and the franchise is truly born.

1990
- A cheat device for the NES is launched, the Game Genie. Nintendo (unsuccessfully) sues US distributor Galoob.

1991
- *Micro Machines* becomes an unlicensed game for the NES. A new Codemasters logo is unveiled.

1992
- The Aladdin Deck Enhancer is showcased for the NES. It gets around the need for a 10NES lockout chip.

1993
- Codemasters leaves the budget market behind and largely concentrates on consoles.

1995
- A host of sports game are made from *Pete Sampras Tennis '96* to Jonah *Lomu Rugby*.

» *Micro Machines 2* was an incredible sequel that greatly improved on the original.

apparent that it was a rerelease of an old Superior game called *By Fair Means Or Foul*. It was also starting to look over its shoulder as the stalwarts of full-price such as Ocean and US Gold were releasing games on their own budget labels including The Hit Squad and Kixx. "But they were old games at budget prices whereas we were doing new games at budget prices and more people were interested in the new games," says David.

Codemasters had dabbled in the full-price market itself, particularly on the 16-bit home computers but found it was a tricky one to crack and so it had started to pull back. Instead, more and more attention was being given to the consoles: *Micro Machines* had been released in 1991 for the NES and it had performed phenomenally well. "It was a great multiplayer [game]," says David, "It built on the concept *of BMX Simulator* which was the first four-player game that we were aware of on home computers.". By 1992, Codemasters was turning over £3.5 million in 1992 and it is understood to have rocketed to £10 million the following year. It had 75 employees and lots of freelancers.

"I was 20 when I started working at Codemasters in 1992, and most of the developers were freelance," says coder Ashley Hogg. "There was a fair amount of structure but it still felt a bit 'Wild West' and loose at times. It certainly grew over the next few years whilst I was there."

Programmers worked in their own rooms, allowing them to concentrate on their work and they tended to graft on their own projects, sometimes doing more than one thing at once. Ashley, for instance, was a coder on *CJ In The USA* and on *The Fantastic Adventures Of Dizzy* but he was also a musician.

"I think it was fairly common back then," he says. "I always wanted to do C64 music so had to learn programming to produce my own audio drivers. In the end I felt I had more of a knack for programming but enjoyed doing music when I could." There was cross-pollination of ideas and code between everyone and the hiring policy asked managers to only take on staff who had better skills in some areas than they did, making for a more equal environment.

The innovation also continued. In 1994, Codemasters introduced the J-Cart for the Sega Mega Drive, a hugely innovative product which placed two additional gamepad ports on the cartridge. It made its debut with *Tennis All Stars* but it came into its own with *Micro Machines 2: Turbo Tournament*. "It was obviously such a great idea," says Ashley. "It suited the next *Micro Machines* game perfectly. The whole thing was ▶

> **"There was a fair amount of structure but it still felt a bit 'Wild West' and loose at times"**
> Ashley Hogg

» Developed by Acid Software, the Mega Drive version of *Super Skidmarks* was published by Codemasters.

1998
■ A range of tune creation-programs is created, starting with *Music. Colin McRae Rally* is released.

2001
■ Military simulator *Operation Flashpoint* is released on the PC.

2005
■ Work begins on the fantasy *MMO Dragon Empires* but it is cancelled three years later.

■ Codemasters benefits from a cash injection from Benchmark Capital Europe. Rod Cousens becomes CEO.

2007
■ Codemasters Online Gaming and Codemasters Mobile launch.

■ David and Richard Darling leave Codemasters. Equity group Balderton Capital buys the company.

2008
■ Codemasters buys Sega Racing Studio and Swordfish Studios which is rebranded Codemasters Birmingham.

2010
■ Reliance Big Entertainment buys a 50 per cent share in Codemasters and ups it to 60.41 three years later.

2012
■ A major emphasis is put on racing with the creation of the brand 'Codemasters Racing'.

2015
■ CEO Rod Cousens leaves Codemasters to join *Runescape* maker, Jagex.

2016
■ Evolution Studios, closed by Sony in March 2016, is reopened by Codemasters.

THE DNA OF CODEMASTERS

What made the long-standing developer so good? Well, we'll tell you…

FAMILY AFFAIR

■ Even though Richard and David sold their stake in Codemasters in 2007, their strong involvement, along with that other family members, makes it difficult to extract the Darlings from the DNA and history of the company.

BUDGET TITLES

■ Codemasters' games in the Eighties were released on cassette as budget titles at a cost of £1.99 (rising later to £2.99 and then £3.99). The idea was that the titles would be of full-price quality but at a pocket-friendly price.

INNOVATIVE TECHNOLOGY

■ Whether it was the release of The *CD Games Pack* in 1989 or the creation of the Game Genie, Aladdin Deck Enhancer and J-Cart devices, Codemasters constantly looked for ways of enhancing the games you played.

SELF-QUOTATION

■ The first game to slap the words "Absolutely Brilliant!" on the inlay was *Jet Ski Simulator*. It was a quote from employee Stuart Regan and it was typical of how the company printed its own quotes on the back of the box.

RECOGNISABLE CHARACTERS

■ Dizzy aside, there was the elephant CJ, the slug Steg, the Viking Spike and the Dizzy-inspired Seymour to name but a few, each tending to appeal to younger gamers.

NINTENDO

■ Whether it was achieving success by publishing games on Nintendo's consoles or becoming involved in a court battle for the right to sell the Game Genie, Codemasters and Nintendo were heavily linked.

RACING GAMES

■ Codemasters was heavily involved in racing games. It published *Grand Prix Simulator* and *Moto Cross Simulator*, *750cc Grand Prix*, *Micro Machines*, *TOCA* and *Colin McRae Rally*. It continues its racing heritage today.

SILICON SPA

■ Codemasters is based in Leamington Spa which has become a hotbed of gaming talent. Companies such as Radiant Worlds, Supersonic Software, Aqua Pacific, Big Big Studios and Kwalee have been spun out of the company.

only possible due to being able to make their own cartridges outside of Sega's licensing model."

Such innovation fostered a can-do attitude and for the developers at the top of their game, the rewards were great. David said some of the top developers – paid on a royalty basis – were earning £300,000 each year.

Codemasters' expertise saw it sail into the 32-bit era as some of its rivals either folded or sold up. The company certainly had no problems with the move to CD – it had dabbled with a compact disc compilation for the Spectrum in 1989 and Ashley had worked – albeit alone – on a *Micro Machines* conversion for Philips CD-i in 1994 – "Philips approached Codemasters as they were trying to turn around the failing multimedia machine into more of a gaming system," he says. "Codemasters weren't really that keen, but Philips were offering some modest cash."

The tricky part was picking the right machine to work with – "We had a strong feeling the PlayStation would work well," says David, "it was a brilliant console," – but Codemasters appeared to take its time, still working on Mega Drive games into 1996. But in 1997, it made *Sampras Extreme Tennis*, *Micro Machines V3* and

» *Micro Machines 4* appeared on the PS2. Codemasters is still working on the franchise to this day.

TOCA Championship Racing for the PlayStation. The following year, it launched *Colin McRae Rally* and it also created tune creation software called *Music*, a franchise which continued until 2004. With the exception of *Micro Machines 64 Turbo* which was released for the Nintendo 64, Codemasters had become loyal to Sony's console and it was picking up awards from leading videogame bodies and magazines for its output.

"It all felt pretty exciting to be involved in an industry that was really beginning to approach the mainstream for the first time and at a British company that was leading the charge," says Natalie Griffiths, who had joined as the senior designer in marketing and promotional materials. "I think it was only in retrospect that I really began to appreciate the formative impact that Codemasters was having on the growing UK games scene."

At the start of the millennium, Codemasters was in a great place. It won a Queen's Award for Enterprise while David Darling was named the UK Entrepreneur Of The Year. *Colin McRae Rally 2.0* was outselling *Pokémon Red & Blue* by three units to one, topping the charts after just three days on sale and doubling the launch weekend of its predecessor. The publisher also announced that it was going to be making games for the Xbox, which was due for release the following year, and it unveiled *Insane*, a 4x4 off-road racer for the PC which was going to be the first game to utilise the Codemasters' multiplayer network for online play.

Success continued for the British studio. In 2001, *Operation Flashpoint* became the 60th Codemasters game to get to number one. The development of the MMORPG *Dragon Empires* was also announced: Ted Carron, now studio head, was put in place as its producer (although, after a series of delays, it would never see the light of day). For the next few years, it continued to rely on its big hitters, from *Operation Flashpoint* to *Colin McRae*. It even buried the hatchet with Nintendo by announcing it would start developing for GameCube in 2003.

WHERE ARE THEY NOW?

DAVID DARLING

■ In 2007, David decided to take a break from videogames and he toyed with the idea of producing robots. A year after he left, he was awarded a CBE and in 2011, he decided to make a return to gaming. He set up Kwalee which employs former *Micro Machines* designer Andrew Graham in 2011. Jason Falcus, who also produced games for Codemasters, is the COO.

RICHARD DARLING

■ Richard is far more private than his brother and maintains a low profile. Like David, however, he couldn't stay away from videogaming for long and he can be found imparting his vast knowledge at Kwalee with David. Kwalee specialises in making mobile games, producing titles such as *Time Monkeys*, *Wave Champions* and *Farm Fighters*.

» Codemasters quickly built a reputation from the PlayStation onwards for making excellent racing simulators.

> **"We had a strong feeling that the PlayStation would work well"**
> David Darling

» Codemasters continued to publish the games of other developers, such as *Worms 4: Mayhem*.

Yet by the mid-Noughties, Codemasters was being slowly taken over by Balderton Capital which was amassing an ever-larger share in the publisher and there were also some changes at the top. In 2004 – the year Codemasters allowed the Commodore 64 version of *BMX Simulator* and *Treasure Island Dizzy* to be downloaded online to celebrate its 18th anniversary – David took over as chairman from James, who remained on the board of directors. In 2005, Rod Cousens joined as CEO and Tony Williams as COO. The Darlings eventually sold their shares to Balderton Capital and left the company in 2007.

But even though Codemasters had lost its founders, the publisher continued much as before. At Gamescom in Leipzig, it promoted playable premieres for *Clive Barker's Jericho, Turning Point: Fall Of Liberty, Colin McRae: DIRT* and *The Lord of the Rings Online*. The company also reached an agreement in 2008 to take over the Sega Racing Studio in Solihull, welcoming more than 40 people to the company.

Over the past eight years, it has pushed more and more into the production of racing games. There was much excitement surrounding *Race Driver: GRiD* and it secured the worldwide publishing rights to the next-gen racer *Fuel* from Asobo Studios which had been in development for more than four years and had a playfield which stretched for 5,000 square miles. It was making such great inroads into the racing genre that it was handed the Grand Prix Award by Develop in 2009.

Codemasters was taken over yet again in 2010, this time by Reliance Big Entertainment and it began to restructure two years later, converting £21 million of expensive debt into equity to put it on a sounder financial footing. It was also decided to transfer *Lord Of The Rings Online* to Turbine but since then, the greatest emphasis has been on its racing games including the *F1* series, *Dirt* and *Grid* and new regular iterations of these franchises are proving popular.

In many ways, its reliance on driving games is no surprise. It's how the company began and it's the staple genre that it has relied upon time and time again. Codemasters has carved a niche for itself and it looks set to continue this way for a good while to come. It is, we have to say, absolutely brilliant to see.

JAMES DARLING

■ It would appear gaming is very much in the blood of the Darlings. In 2011, it was announced that James had been appointed by David as the chairman of Kwalee, acting as a global company ambassador and working in a non-executive role. James has worked with his sons from 1982, when they set up Galactic Software, and subsequently Codemasters in 1986.

BRUCE EVERISS

■ Bruce left Codemasters in 1987 but he made a return in 2001 for a further two years, running the PR operation there as head of communications. He owned the All Formats Computer Fairs until 2007, worked as the chief marketing officer at Kwalee from 2011 to 2013 and he now works as a successful marketing and management consultant.

ASHLEY HOGG

■ Lots of programmers from Codemasters have remained around Leamington Spa area and Ashley is no exception. After leaving Codemasters in 1995, he became a programmer at Runecraft, Blitz Games and Playground Games and he now works at Radiant Worlds, run by the Oliver twins (who also ran Blitz Games up until 2013).

THE OLIVER TWINS

■ Philip and Andrew left Codemasters in 1990 to form their own company, Interactive Studios (later Blitz Games), They also founded the trade body TIGA and received honorary doctorates in 2008 from Coventry University. Blitz went bust in 2013 but the Olivers re-employed many of their former employees at their current company, Radiant Worlds.

© Original art by Bob Wakelin.
Restoration work by Mark R. Jones

Following the success of Ultimate's groundbreaking Knight Lore in 1984, a predictable cluster of similar games began to appear. Three years later, Jon Ritman and Ocean proved originality was still possible within this crowded genre. Graeme Mason dodges a Prince Charles Dalek and gives you the ultimate guide to this marvellous isometric classic

***Knight Lore*: a legend not only in gameplay, but also game design and graphics. Viewed by many as publisher Ultimate's finest hour,** it was the game that launched a whole new genre on the ZX Spectrum in particular. Many developers took note; particularly impressed was programmer Jon Ritman, at the time busy designing his soon-to-be-famous football game, *Match Day*. Working freelance for Ocean Software, Jon's first isometric effort was the comical adaptation of *Batman*. Using an old gaming trick, he considered all the abilities that he would like the dark knight to have, and then took them away, thus making the player earn various gadgets and powers such as the 'Bat Boots' for extra jumping height. *Batman* also used a *Knight Lore*-esque isometric engine.

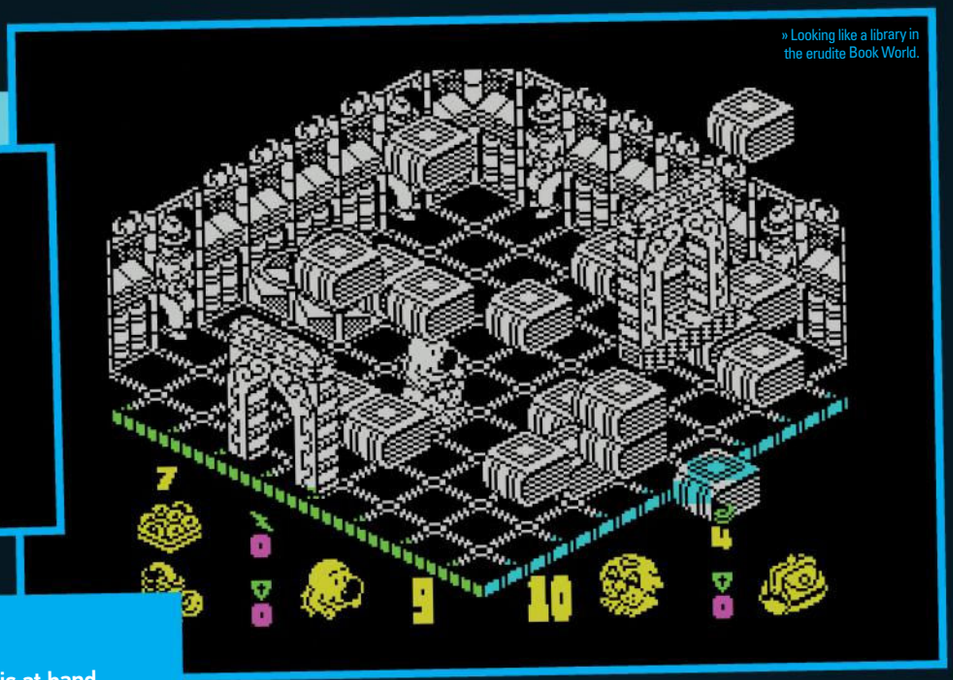
"The germination of the idea for two characters came as an extension of that really," says Jon, "with the added bonus of being able to separate them over and over again." After the double successes of *Match Day* and *Batman*, Ocean was perfectly willing for Jon to create and design his own game as their next project. Freed from the shackles of a licence, the coder set to work building a gargantuan world and a ream of chin-stroking logic puzzles, along with his graphic artist colleague, Bernie Drummond.

Incredibly, Jon reveals that there was no structured design to *Head Over Heels* prior to commencement of coding, and admits that he "made it all up as he went along". Having ▶

PIXEL PERFECT

Bernie Drummond filled Head Over Heels with all sorts of wacky things

» Head and Heels' task is summarized in this opening screen.



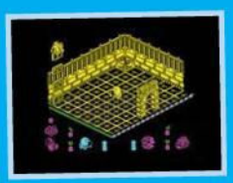
» Looking like a library in the erudite Book World.

HOW TO PLAY

Struggling to defeat the evil Blacktooth Empire? Help is at hand…

GO FISHING

■ In the middle of this room lies an over-designed fish called the Reincarnation Fish. Gobble him up and it remembers everything about you, effectively acting as a check point should Head or Heels accidentally lose a life.

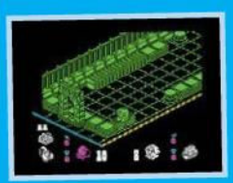


FLUFFY BUNNIES

■ These little white rabbits are definitely worth going out of your way to collect, rewarding the player with special powers such as extra lives, invulnerability and higher jumps. Energizer Bunny, eat your heart out.

USE A MAP OR YOUR MEMORY

■ While a map is very useful, learning the position of the many rooms by heart is an even better way of playing *Head Over Heels*. It may take time, but with multiple exits, such as here, it's worth it.



JUMP AROUND

■ *Head Over Heels* is a platformer at heart, albeit a clever and in-depth one. There's a lot of jumping to be done, so learning how far each character can leap is vital for solving the many puzzles.

TIME ON YOUR SIDE

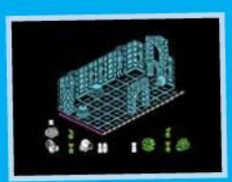
■ There is no time limit, so the player can take their time, exploring each room. Sometimes a puzzle is not solvable right away, so you can return to have another crack.

TWO HEADS ARE BETTER THAN ONE

■ Some puzzles and rooms can only be solved using Head and Heels' combined powers, so don't panic if a solution seems impossible with just one character.

GRAB THE BAG

■ Only Heels can carry the bag, and it's vital that he picks it up as quickly as possible. Many puzzles rely on Heels' ability to carry and drop objects, so make sure to seek it out immediately.



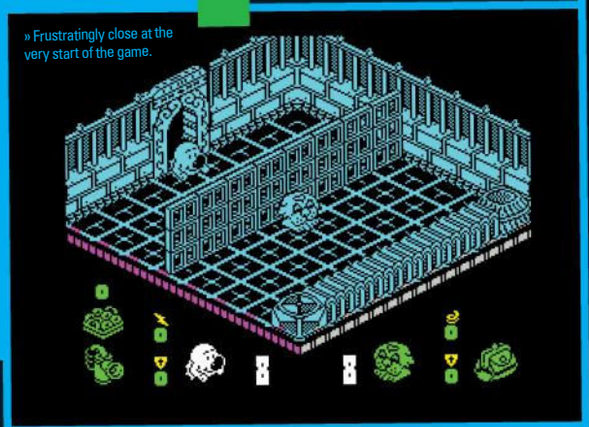
BETTER APART

■ Even when reunited, some rooms will require the two spies to work separately. Constant thought about how the two work is vital if the player is serious about rescuing the enslaved planets.

▶ devised the appropriate title of *Foot And Mouth*, the game's basic premise is of the two characters, tantalisingly separated by a single wall in an early screen, who can be switched between by the player to take advantage of their individual strengths. Head can jump higher, directionally control his jumping and fire doughnuts from a hooter to temporarily stun enemies. Heels can run faster, climb steep staircases and carry objects around in a bag. Combine the two together and each character's abilities also merge, helping the player solve even more puzzles. And as for the seemingly complex storyline which most reviews spent much time analysing, Jon reveals, "The plot was made up after the game was finished. It probably took me about 20 minutes."

Head Over Heels is the story of the two eponymous spies, sent from their home world of Freedom to a planet enslaved by the evil Blacktooth Empire. Their mission: disrupt the local population and instigate a rebellion. A bizarre pair of symbiotic creatures, Head and Heels are quickly captured by the empire and sent to its penitentiary planet. At this point the player takes over and must guide the pair to the moon base, whereupon they can either escape back to freedom or continue their mission and incite rebellions on all four enslaved planets by capturing its respective crown. Completion of this will compel the population of the Blacktooth home planet itself to rise up against its oppressive rulers and enable Head and Heels to destroy the evil emperor. Each planet is presented in an isometric viewpoint and has its own peculiar inhabitants and locations. One, similar to ancient Egypt, contains mummified enemies and countless pyramids. Another is a densely-vegetated jungle planet, infested with primitive, yet effective traps. And, of course, there is Blacktooth, a grim world in which the emperor resides in his castle, surrounded by a range of impassable mountains. The only way in – or out – is via teleporter to the planet's satellite moon base.

The idiosyncratic nature of each planet allowed graphic artist Bernie Drummond to create many excellent and amusing backdrops and sprites. "I encouraged Bernie to do great artwork, stuff that looked good," remembers Jon. "And I more or less didn't care what it



» Frustratingly close at the very start of the game.

CLASSIC RITMAN

Five of the best from the legendary Speccy coder

BEAR BOVVER 1983

■ Jon designed several games for Artic, and this is arguably the best. Featuring large, brightly-coloured sprites, the task was to obtain batteries for Ted's car from a construction site. When we say obtain, we mean steal. Naughty Ted!

MATCH DAY 1984

■ *Match Day* revolutionised Spectrum football, eclipsing efforts such as *Artic's World Cup Football*. For the first time it was possible to actually put together a proper passing move, and the presentation and options were superb.

BATMAN 1986

■ Inspired by Ultimate's *Knight Lore*, Ocean Software handed Jon Ritman the *Batman* licence to work on an isometric game. The result was a comedic, yet absorbing, take on the Dark Knight. You can learn more by picking up RG issue 139.

MATCH DAY II 1987

■ For *Match Day's* sequel, Jon added new elements such as a variable power kick bar, back heels and an innovative technique called 'Diamond Deflection'. Updated graphics were courtesy of Bernie Drummond, who worked with Jon on *Batman*.

MONSTER MAX 1994

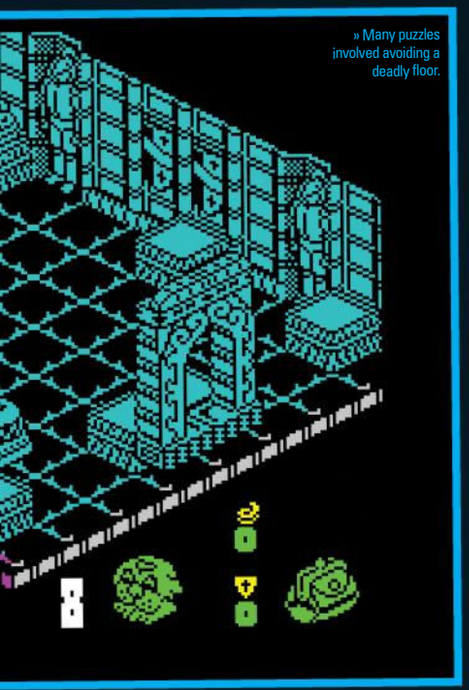
■ Jon's only Game Boy title, this was another excellent isometric adventure and similar in many ways to *Head Over Heels*, so much so it is often regarded as a spiritual successor. Unfortunately, despite good reviews, it sold poorly.

"After the double successes of Match Day and Batman, Ocean was perfectly willing for Jon [Ritman] to create and design his own game as their next project"

was, or if the scales of each object were entirely different. I had realised early on that if you tried to keep everything on a constant scale, then all the smaller stuff looked crap." Each basic item in the game had a name; for instance, the standard block, that was subtly altered for each planet, was known as a 'brick'. Smaller items were known as 'sweeties'. "So I would just tell Bernie that I needed more sweeties, or whatever," says Jon, "and he would do a pile of them, and I would select the ones that looked the best." Thus *Head Over Heels*' odd style, none more displayed than in the strange enemies such as the mutated Daleks, and helpful items such as cuddly stuffed white rabbits and hush puppies, came about. Within each meticulously-designed world lay many rooms, most with movement, jumping or logic puzzles of some description. To aid Head and Heels are a number of items, similar to the gadgets of Jon's earlier game, *Batman*. Most useful are the white rabbits which can yield extra lives, speed or jumping height. Head can also pick up tempting trays of doughnuts which can be used to stun annoying enemies, while Heels can take advantage of hush puppies, strange creatures that magically teleport away at the sight of Head, unhappy at being mistaken for Heels. All these elements must be used, manipulated and conquered by the player if the planets are to be freed and the empire destroyed.

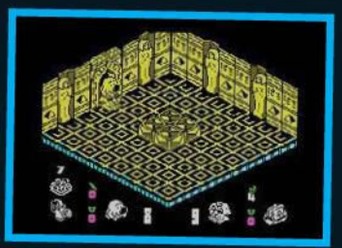
Head Over Heels was, for the time, one of those rare games that scored impressively across every format it was released on. The ZX Spectrum lead version received a 'Crash Smash' and a score of 97% as its reviewers applauded the meticulously designed and quirky graphics, cunning puzzles and addictive gameplay. Praise from *Crash*'s sister magazine, *Zzap!64*, was even more effusive on Colin Porch's Commodore conversion, surprising considering its monochrome graphics. Yet the reviewers recognised the same playability and fun of the Spectrum original and bestowed an incredible 98% on the game. Despite its critical reception and impressive sales, *Head Over Heels* did not receive a direct sequel. Popular enough to spawn 16-bit versions two years later, it was one of the final original Spectrum games released by Ocean as the famous software house concentrated on licensed properties. Jon Ritman moved to Ultimate – now rebranded as Rare – as a freelance developer, and in 1994 would create a spiritual successor to *Head Over Heels* with the Game Boy title *Monster Max*. Today, *Head Over Heels* remains a fine example of game design and well-balanced puzzle-solving and is not only one of the best isometric games from the era, but one that is fondly remembered to this day. ✱

Thanks to Jon Ritman for his time.



» Many puzzles involved avoiding a deadly floor.

» The Market Place is just as deadly as the other parts of Blacktooth.

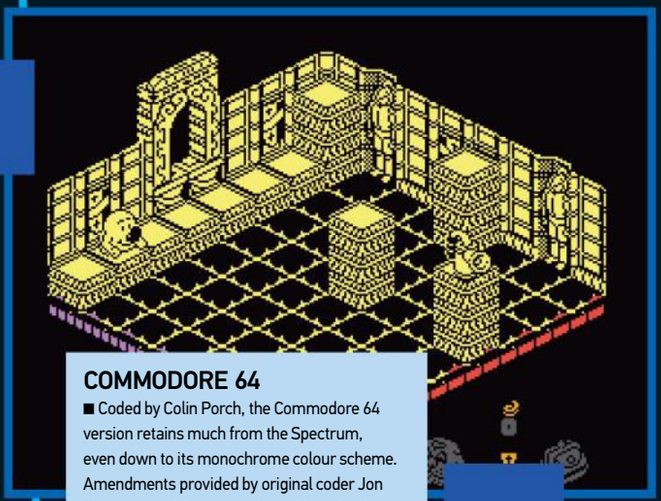


» Walking like an Egyptian in Egyptus World. They do the sand dance don't you know?

» A disdainful appraisal of the player's efforts. Do better next time.

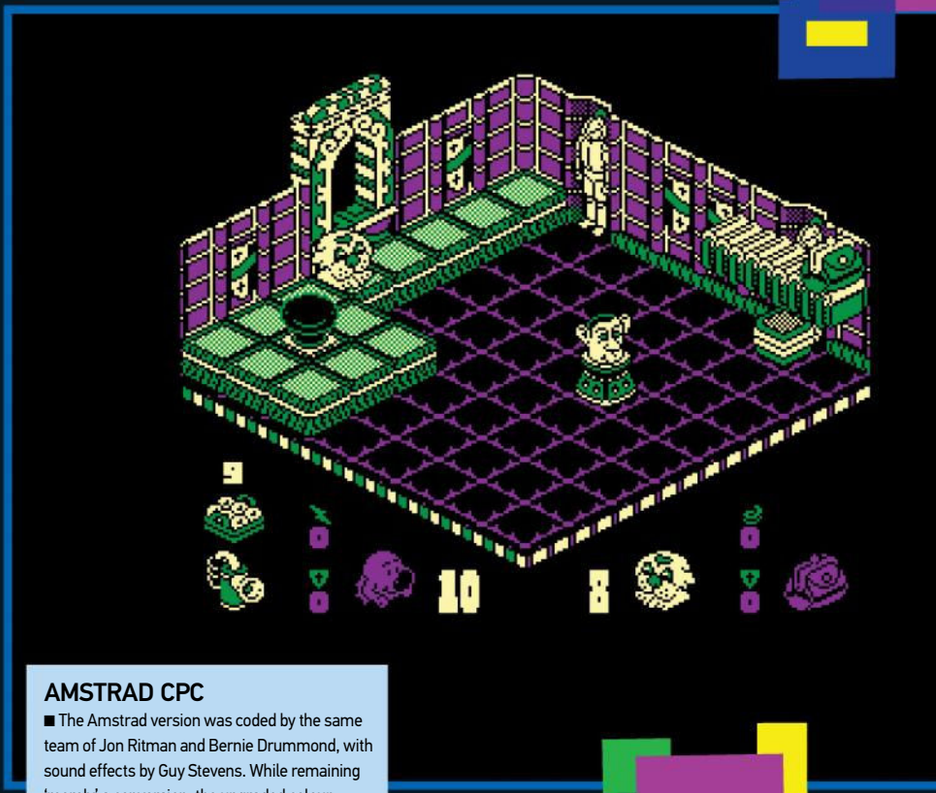
CONVERSION CAPERS

You'll be head over heels with these numerous conversions



COMMODORE 64

■ Coded by Colin Porch, the Commodore 64 version retains much from the Spectrum, even down to its monochrome colour scheme. Amendments provided by original coder Jon Ritman eased the conversion, although other than inevitable aural improvement, the game is comparable and just as sweetly designed.



AMSTRAD CPC

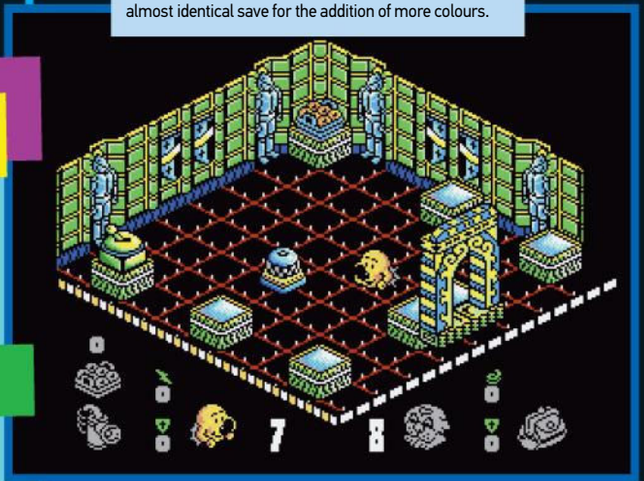
■ The Amstrad version was coded by the same team of Jon Ritman and Bernie Drummond, with sound effects by Guy Stevens. While remaining 'merely' a conversion, the upgraded colour palette and superior sound elevate it above the Spectrum version, even though some of the tunes can grate a little after a short time.

ATARI ST/COMMODORE AMIGA

■ Like the Amiga version (below), the Atari ST (above) only got *HOH* two years after its original release. Ported from the C64 version by Colin Porch, they're faithful versions in terms of gameplay, and the graphics are almost identical save for the addition of more colours.

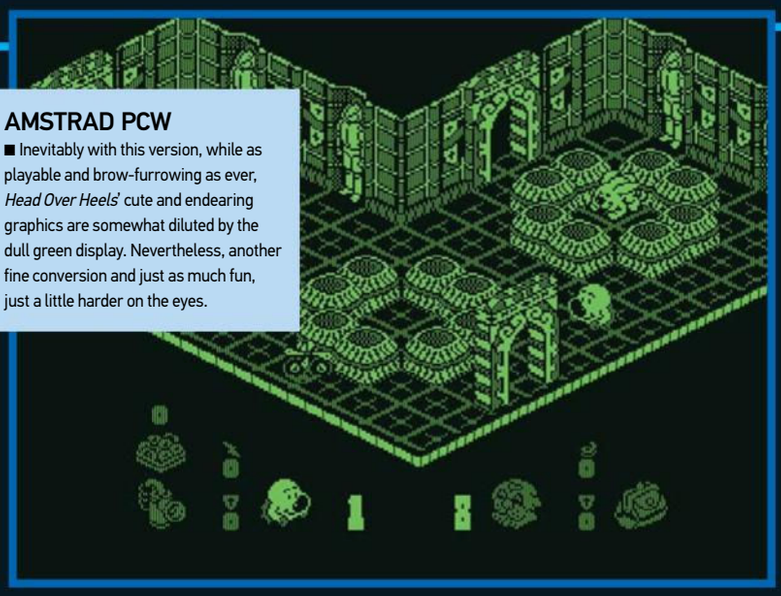
MSX

■ Almost identical to the ZX Spectrum version, there are a few cosmetic differences on the MSX with some alternate colours on most levels, and minor graphic alterations. Otherwise, it has the same beautifully balanced gameplay.



ATARI 8-BIT

■ Its graphics are not quite as sharp as the Amstrad version, but the Atari makes a credible effort at recreating the Spectrum original. Sound effects more akin to a shoot-'em-up are a little intrusive and bemusing, but most of the iconic gameplay is there. It's another conversion by Colin Porch.



AMSTRAD PCW

■ Inevitably with this version, while as playable and brow-furrowing as ever, *Head Over Heels*' cute and endearing graphics are somewhat diluted by the dull green display. Nevertheless, another fine conversion and just as much fun, just a little harder on the eyes.

> **"I encouraged Bernie to do great artwork, stuff that looked good"**
> Jon Ritman

ZX SPECTRUM

■ Jon Ritman's original version was a huge critical hit at a time when interest in isometric games was beginning to wane. Intricately designed graphics from Bernie Drummond and a wonderfully balanced selection of logic puzzles ensured the game was a smash.

PC (RETROSPEC REMAKE)

■ Like many of the well-loved classics of its era, *Head Over Heels* has received several PC remakes. Best of the bunch is this lovely update from Graham Goring (graphics) and coder Tomaz Kac. The exquisite gameplay and level design is retained, now with striking graphics and a useful save system. Head on over to retrospec.sgn.net/games/hoh/index.html for further details and downloads.

DEVELOPER INTERVIEW – COLIN PORCH

We talk to the man behind the Commodore 64, Atari ST and Amiga ports of Head Over Heels

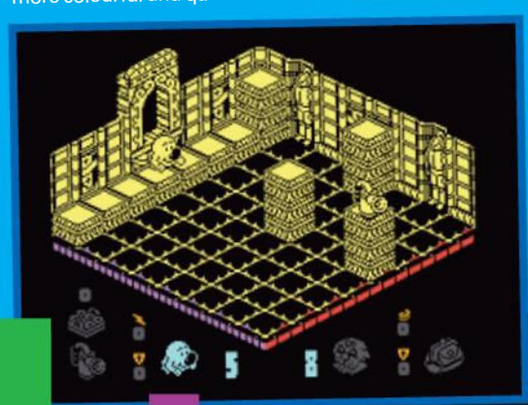
What did you think of the original game and design?
I thought it was superb! The whole concept appealed to me greatly as I love logic and reasoning puzzles.

The Commodore 64 wasn't renowned for its isometric games. How did you go about converting *Head Over Heels*?
Essentially I had to reproduce 6502 routines that performed the same tasks as Jon's Z80 ones, which wasn't so easy when it wasn't always obvious what his routines were doing – the maths involved in isometric projection is far from trivial! And although the C64 had wonderful colour possibilities, they could not be used for this. Two colours were all we could use for the rooms, one of which had to be black.

Did you liaise with Jon during development?
Very much so. We had a long meeting at Ocean where Jon outlined the general method of producing the isometric effect for the screen – you only updated the part of the screen that was changing, creating a window around the areas and adding each layer back to front. It sounds simple – but it isn't!

Did you need to change anything so that the game suited the Commodore 64 better?
Personally, no. However, I found out after the game was released that Jon had actually made some changes himself before giving me the data. He was convinced that the C64 was not up to handling some of the more complicated rooms at an acceptable speed, so the C64 room layout was slightly different.

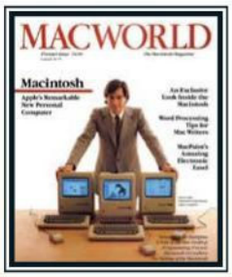
How did the Atari ST and Amiga versions come about?
I was very struck by the Atari ST and I decided to try and get to grips with it and developed my skills in my spare time by converting *Head Over Heels* to it. When I had a working version of the game, I showed it to Ocean and they were very happy to pay me for it. I had no way of changing the bit-streamed data, however, so it was lifted straight from the C64 version, except the graphics were more colourful and quicker.



Welcome to Macintosh.
Macintosh Plus

Celebrating the Macintosh.

When people think of Apple's mark on gaming, they focus on the ill-fated Pippin. But, as David Crookes explains, the Mac has had its fair share of moments



» The debut issue of *Macworld* in the US featured a youthful-looking Steve Jobs with the Macintosh 128k on the cover.

Steve Jobs was many things: idiosyncratic, charismatic, great at business and exceptional at marketing. But the originator of the Macintosh? Not quite. Steve Jobs' reality distortion field is a component of his genius but, in truth, Apple's most famous run of computers was actually a project started by Jef Raskin, rather than the acclaimed, gifted and turtleneck-clad leader.

The story began when Jef, who joined Apple on January 2 1978 as employee number 31, tried to think of a way to expand home computers from the hobbyist market. He proposed an all-in-one 8-bit machine, called the McIntosh (later changed to 'Macintosh' for legal reasons), intended to retail at $500.

Steve Jobs, was working on a separate machine called Lisa at first, but he eventually climbed aboard the Macintosh project in 1981 when a restructure of Apple forced him off his own troubled Lisa project and caused him to look around for something else that he could sink his teeth into.

In the early days, the Macintosh had 64K of RAM, a Motorola 6809E microprocessor and the capacity to support a 256x256 black and white display. But as the team expanded the its scope, in part to run the Lisa's graphical programs, its specs evolved: the computer was given the same 68000 8Mhz microprocessor as the Lisa, a monochromatic screen at a resolution of 512x342 and a 3.5-inch floppy drive. Memory was also doubled to 128k. Component costs also began to fall rapidly, allowing Steve Jobs and his team to make a more powerful system.

Engineer Burrell Smith fitted the components on to two small circuit boards, and the Mac acquired a detached keyboard and a single-buttoned mouse (later dismissed as a fad by some commentators), designed to work with the keyboard. Three years before the Mac's debut, Raskin quit, leaving Steve Jobs in charge of the project, including its GUI-based OS, System. The end result was wildly different from Raskin's concept, as was its price tag: a huge $2,495.

Mac Timeline.

A brief look at every iteration of the mac since 1984 till modern day

1984

Macintosh 128K
$2,495
■ The original Mac, with its nine-inch CRT monochrome monitor, introduced a graphical user interface and mouse to the masses.

Macintosh 512K
$2,795
■ This machine had the same Motorola 68000 8MHz processor as its predecessor but added four times as much memory.

1985

Macintosh XL
$3,995
■ A version of the flop $9,995 Apple Lisa, the XL modified came with MacWorks XL which allowed Mac ROM emulation.

1986

Macintosh Plus
$2,599
■ With a SCSI port, a 800KB floppy drive and 1MB of expandable RAM, the Plus was sold for almost five years.

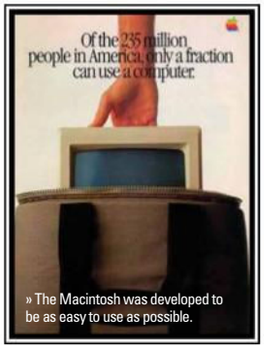
1987

Macintosh II $5,500
■ Now boasting a colour display, the Mac had a faster Motorola 68020 16MHz CPU and the capacity for 20MB RAM.

Macintosh SE $2,900
■ A compact Mac with an expansion slot, this computer improved on the Plus and, like the Macintosh II, was sold without a keyboard.

Macintosh 128K © allaboutapple.com

Work progressed well. Andy Hertzfeld had been tasked with creating a great chunk of the OS and he introduced designer Susan Kare, who not only worked on the Mac's infamous icons but the fonts too. They helped to make the operating system easy to use and this would become a fundamental part of the Mac's success, easing the pain of a $2,495 price tag. The computer was about to embark on an epic journey.



» The Macintosh was developed to be as easy to use as possible.

Release

One of the first salvos in the assault on the computer market was an advertisement broadcast to 77.62 million people on the TV station CBS during a break in the third quarter of Super Bowl XVIII. It was 22 January 1984, and director Ridley Scott had sidestepped the usual 'buy-this' approach of adverts in favour of playing on the paranoia of many Americans concerned that the introduction of computers would intrude on privacy.

The Apple board had been unsure about the advert's haunting dystopian vibe and, at one point, Steve Jobs and Steve Wozniak considered going halves on the cost of airing it when the powers-that-be became jittery. Steve Jobs felt the $370,000 advert was in keeping with his belief that the computer would change the world. "On January 24th, Apple Computers will introduce Macintosh," the ad boomed. "And you will see why 1984 won't be like *1984*".

On that day, Steve Jobs took to the stage to officially launch the Mac (making no mention, incidentally, that he had sought to change the code name of the project to 'Bicycle' in February 1981). "Today, one year after Lisa, we are introducing the third industry milestone product: Macintosh," he told the audience, in reference to the Apple II and IBM PC before pulling the computer out of a bag to the strains of Vangelis' musical score from *Chariots Of Fire*. He showed off the computer's voice synthesis and, within a short period of time, $3.5 million worth of Macintoshes were sold. It was a vindication for Steve Jobs as well as, perhaps surprisingly, the Microsoft chairman Bill Gates. Having climbed aboard the project in January 1982, Microsoft had supported the machine with a range of application packages and Bill had praised the Mac's single video mode, crisp pictures and integrated system.

"Steve's vision of where the machine should go – that it should be a simple, inexpensive graphics machine – has been preserved," Bill told *Macworld* magazine in the US. "But the disk, the memory, the code in ROM, the number of bits on the screen – they're all different."

Microsoft's apps ensured business people would take the computer seriously and by April the Macintosh had sold 72,000 units. He concluded: "The Mac will be remembered as one of the great classic machines."

Although there were some negative reviews (John Dvorak of the *San Francisco Examiner*, in particular, snarked, "The Macintosh uses an experimental pointing device called a 'mouse'. There is no evidence that people want to use these things") the consensus was that the first Mac enabled people to get people down to business with the minimum of fuss. "The key to the Mac is to spare people from having to know all the complexities of its innards," said engineer Burrell Smith. Whether they were using MacPaint or MacWrite, people were struck by the Macintosh's ease of use.

Yet, for gamers, the Macintosh was far from ideal. It wasn't so much the fact it did not have colour but more a lack of desire to create games. Indeed, Apple wanted to distance the machine from anything frivolous with Andy Hertzfeld recalling a worry within Apple that even the Mac GUI could be viewed as too "game-like".

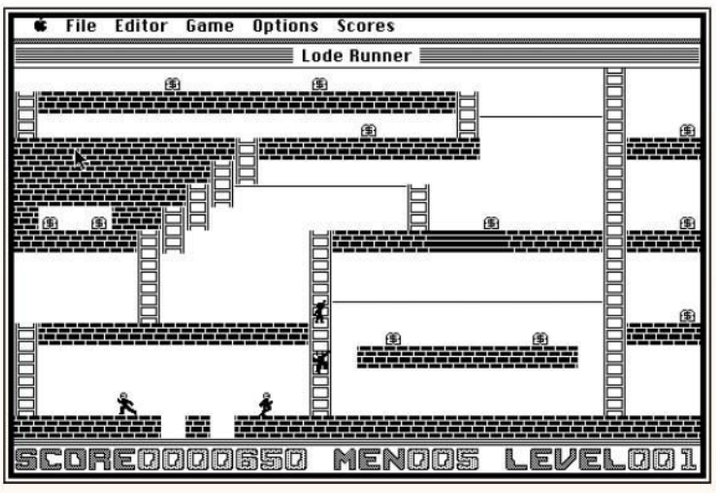
His built-in game *Puzzle* may have been notable for being the first game to be integrated into a computer's OS, and as the first game to be made specifically for a mouse but he struggled to get it approved. It was only when the game, written as a desktop accessory and so able to share memory with the main application, was re-coded down to a measly 600 bytes that it was allowed. There was no doubt that the Mac was about productivity first and foremost.

1984-1990
The Desktop Publishing Years

By September 1984, Apple had launched a 512K version of the original Macintosh, dubbed the 'Fat Mac', but while that helped in the war against IBM's 256K machines, it was the release of a printer – the Apple LaserWriter – in January 1985 which really spurred sales. Swiftly followed by the launch of Aldus' PageMaker which was aimed specifically at consumers on the insistence of Steve Jobs, the Mac was positioned as a creative machine and a desktop publishing boom followed.

Not that Steve Jobs saw it all first hand: vice president of product development Jean-Louis Gassée got wind that Steve Jobs was seeking to oust the then-

> **"We wanted to work on the Mac because it was a cool machine and an interesting technical challenge"**
> Robert Woodhead



1989

Macintosh Portable $6,500
■ Apple's battery-powered Portable may have been hot on performance with an active-matrix display but it was heavy and expensive.

1990

Macintosh Classic $999
■ Sold for three figures and compatible with the original 68000 line, the Classic was faster than the Plus it replaced.

1991

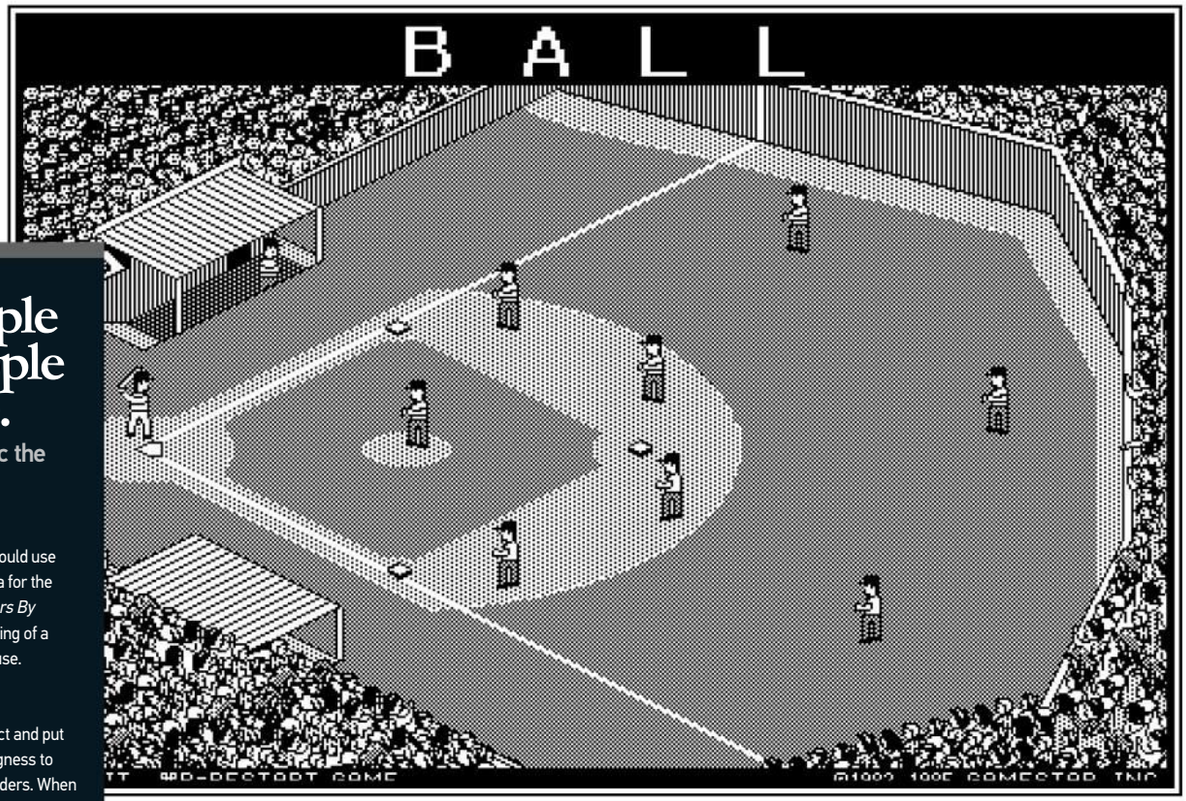
PowerBook 100 series From $2,300
■ These successful laptops with built-in trackballs and pushed-back keyboards came in three flavours – 100, 140 and 170.

Macintosh Quadra 700 $6,000
■ Replacing the Mac II as the high-end machine, this mini tower incorporated a Motorola 68040 processor and built-in Ethernet.

1992

Powerbook Duo series From $2,250
■ There were seven different models in this laptop range spanning four years, each having small trackballs and keyboards.

Macintosh LC From $2,500
■ The 'low cost' Mac had a 16MHz 68020 processor and up to 4MB of RAM. Enhanced LCII, III, III+ and 475s followed.



» *Champion Star League Baseball* was a faithful rendition of the popular US sport with sharp visuals.

The Core people behind the Apple Mac Range.

The people who made the Mac the industry giant it is today

JEF RASKIN

Jef emphasised *how* humans would use computers when he had the idea for the Macintosh. His report, *Computers By The Millions*, laid down his thinking of a machine that would be easy to use.

STEVE JOBS

Steve Jobs moved to Jef's project and put his own spin on it. But his willingness to give the Mac his all worked wonders. When he returned to Apple he focussed again on the Mac redefining the range.

BILL ATKINSON

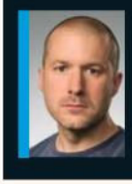
Atkinson had worked on the Lisa project but he moved over to the Mac team, producing much of the initial user interface along with HyperCard which let people to create apps, games and databases.

BURRELL SMITH

In the early days of Mac production, Jef had invited Burrell on board. His prototype of the early Macintosh was impressive and so he was handed the task of designing the gubbins which went inside the machine.

SUSAN KARE

Susan arrived in 1983 and designed the Mac windows, dialog boxes, fonts and icons. Her unique way of making the Mac's software look approachable endeared many to the machine, including newbies.



SIR JONATHAN IVE

British-born Jon Ive was instrumental in making the Macs of Steve Jobs' second era so eyecatching. His flair was unleashed on the 1998 iMac and he has had a hand in all of Apple's Macintoshes since.

Photo of Steve Jobs © Matthew Yohe

CEO John Scully and it prompted Steve to leave in 1985 and form a new company, NeXT. Still, Apple continued to release new Macs, including the expandable 1MB Macintosh Plus, the 16MHz Motorola 68020-powered Macintosh II and the compact Macintosh SE. Guy Kawasaki, who had been Apple's chief evangelist since 1983, was successfully persuading serious developers to create apps for the Mac. But gaming was not on his agenda even though Apple Computers officially sold Steve Capps' *Through The Looking Glass* (the only game it took on board).

It didn't stop a flurry of releases, though. Francis Pandolfi, who headed Scarborough Systems and released *Run For The Money*, told *InfoWorld magazine* he had confidence in the market. And while the Mac lacked high-end arcade conversions (and had a few staid offerings such as *Mac-Slots*, *Mac-Jack* and chess game *Sargon III*), some coders were enthused. *The Ancient Art of War*, Infocom's *Zork*, *Lode Runner*, the RPG *Ultima II* and Bill Budge's *Pinball Construction Set* (which Steve Wozniak called, "The greatest program ever written for an 8-bit machine") made their way from Apple II, while adventure game *Transylvania* took advantage of the Mac's sharp, high-res visuals by splitting the screen into four boxes and making use of an on-screen, mouse-controllable compass for navigation.

Andrew Greenberg and Robert Woodhead rewrote Sci-Tech's *Wizardry* from the ground up. "We wanted to work on the Mac because it was a cool machine and an interesting technical challenge," Robert tells us. "Back then, Mac programming had to be done on a Lisa and getting things to fit on a 128K Mac was as hard as getting the original game to fit on a 48K Apple II."

There were also many Mac-originated games from mindSports' *Ground Zero* and the platformer *Dark Castle To Scarab Of Ra* and *The Fool's Errand*. "We weren't sure how big the market was going to be, but the Mac interface was going to be influential and we wanted to play with it," Robert adds. "You may recall that we implemented the multiple overlapping Window-style in the Apple *Wizardry* about that time as well."

Infocom supported the Mac too, creating interactive fiction title *The Hitchhiker's Guide To The Galaxy* to the joy of early Mac adopter Douglas Adams. *Airbourne!* was the first to use digitised sound and *Megaroids* was a fine *Asteroids* clone by Mike and Mitch Bunnell. In fact, by the end of the decade things were becoming very interesting. It had become apparent where the stronger Mac markets were (the US, Canada and France) and the AppleTalk network and the use of modems opened up multi-user games including the five-player *Maze Wars+* (which came with the Mac for a spell), war simulation *Strategic Conquest* and Spectrum Holobyte's flight simulator, *Falcon*.

Developers such as Will Wright, who produced *SimCity* on the Mac, enjoyed the less-crowded market and niche audience the computer provided. Yet one invention during the Eighties – the HyperCard – would pave the way for further greatness in the next decade – just as Apple's popularity began to severely wane. ▶

1993

Macintosh LC 500 series From $2,000
■ Incorporating the 520, 550, 575 and 580, these computers had 14-inch displays, CD-ROM drives and stereo speakers.

Macintosh TV From $2,097
■ An attempt to essentially combine a LC520 computer with a television barely lasted four months and sold just 10,000 units.

Macintosh Centris From $2,520
■ These were lower in performance than the Quadras. They were deemed market confusing and soon abandoned.

Macintosh Quadra 800 $4,700
■ It had the same 68040 33Mhz processor as the Quadra 950 but it barely lasted a year. The faster 840AV was also released.

1994

PowerBook 500 series From $4,800
■ Starting with the 540c, this new PowerBook used a Motorola 68LC040 CPU and it replaced the trackball with a trackpad.

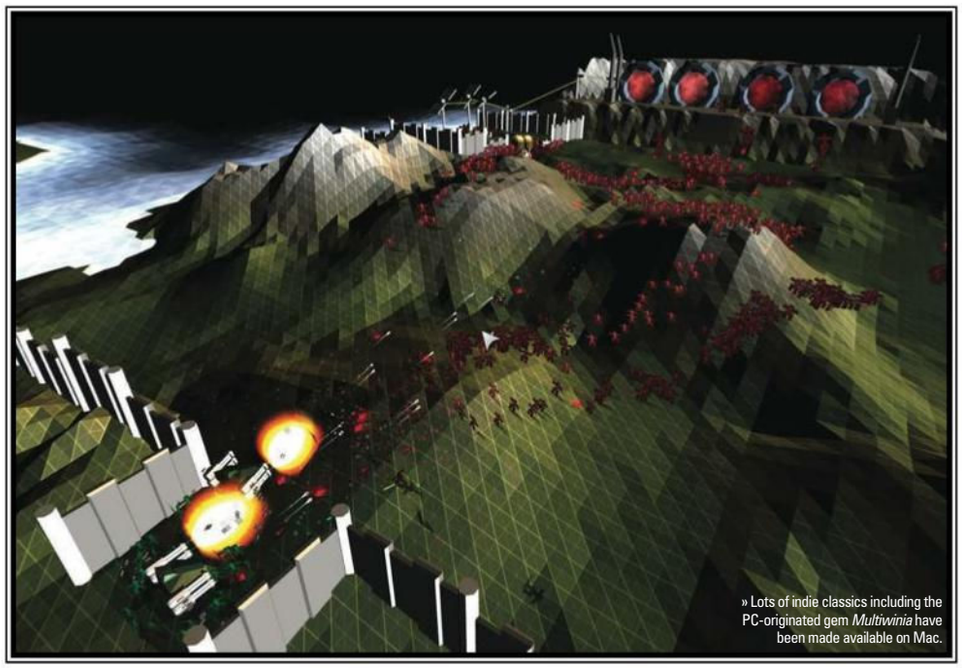
1996

Power Macintosh 4400 $1,700
■ This Power Mac was originally only sold in Europe but was released in the US and was known as the 7220 in Australia and Asia.

» Presto Studios produced a third *Myst* – *Myst III: Exile* - for the Mac OS in 2001 with the game spanning four CDs.

As a test of your abilities, the King has appointed you as Regent over a small parcel of land. Since we must keep our armies in the field well supplied, you are to build the town into a farming center of no less than 6 farms.

» *Warcraft: Orcs & Humans* was converted by Blizzard Entertainment from Windows to the Mac systems in 1996.



» Lots of indie classics including the PC-originated gem *Multiwinia* have been made available on Mac.

1990-1998
The Decline Of Apple

Bill Atkinson had designed HyperCard, an early app maker, in 1987. It allowed non-programmers to efectively put together interactive information on cards which were grouped into shareable 'stacks'. Each card would contain images, information and buttons linking to details on the same or other card.

The children's adventure game, *The Manhole*, was created using Hypercard in 1988 by brothers Rand and Robyn Miller but it was their subsequent Mac game, *Myst*, in 1993 which blew gamers away. "*Myst* revealed a hidden value of the Mac market – getting the Mac community excited about a game could drive success across all platforms," says Peter Tamte, who founded the world's largest developer and publisher of Mac software – MacSoft – in 1993.

He says the game woke people to the Mac's potential. "*Myst* took off when the editor of *Macworld* got excited about it and then spread the word to the Mac community," Peter adds. "The lesson? Target the niche first. Let the niche help you cross the chasm to the mainstream market."

At the time, other fledgling Mac-only developers had been making their mark too. MacPlay was founded as a division of Interplay Entertainment and it brought *Wolfenstein 3D*, *Alone In The Dark* and *Descent* to the Mac. Bungie, formed in 1991 by Alex Seropian, published the tank shooter *Operation: Desert Storm* followed by *Minotaur: The Labyrinths Of Crete* with a multi-user mode that worked via AppleTalk. The FPS *Pathways Into Darkness* in 1993 was followed by the breakthrough *Marathon* series. In 1997, *Myth: The Fallen Lords* was the icing on the cake.

> **"I reported directly to Steve Jobs, so I had the opportunity to speak with him at length about videogames on the Mac"**
>
> Peter Tamte

LucasArts brought over its point-and-click adventures including the *Monkey Island* series. Meanwhile, Windows games were also finding their way to the Mac thanks to companies such as MacSoft and Interplay. Ambrosia Software was founded in 1993, debuting the Mac-only shooter *Maelstrom*. Indie game developer Spiderweb Software produced *Exile*; while Freeverse Inc started as a shareware company and won numerous *Macworld* awards. *Hearts Deluxe* was notable for its AI.

Yet Windows 3.0 was making inroads (Sculley had allowed Microsoft to mimic System's look) and the Apple product line was becoming confusing. Mac clones were allowed, Windows 95 proved popular and Apple's position as a computer manufacturer was falling. The company released the Macintosh Classic at a wallet-friendly $999, unveiled "low-cost colour" Macintosh LC machines and replaced Motorola CPUs with RISC PowerPC architecture but Apple was lurching from bad to worse.

In 1996, Apple was on the verge of bankruptcy and Dr Gilbert Amelio had taken control as CEO, replacing Michael Spindler. Steve Jobs, when asked what was going wrong at his former company, said: "Apple stood still." The following year, Gilbert decided Apple should buy NeXT and Steve Jobs returned to the first company he founded. He vowed Apple would never repeat mistakes such as 1993's Macintosh TV which sought to integrate a television with a computer and 1995's ill-fated Mac-derivative Apple Pippin multimedia console. For some it was too late – MacPlay was abandoned in 1997 – but "Think Different" was Jobs' mantle and a new future awaited.

1998-2005
The revival

With Gilbert having left, Apple was being steered by Steve Jobs and Apple began to feel a fresh breeze blowing through the corridors of its Cupertino HQ. The new boss put a stop to the cloned Macs and switched

1997

PowerBook 2400c $3,500
■ Replacing the PowerBook Duo 2300c, this had a fast PowerPC 603e 180MHz processor and it forewent a CD-ROM drive.

Power Macintosh 9600 $3,700
■ Replacing the 9500 as the flagship desktop, this machine was released with the 7300 and 8600 and the last to support System 7.

Power Macintosh G3 $1,599
■ The original beige tower G3 was the first to use the PowerPC G3 processor and it was also sold direct via Apple's online store.

PowerBook G3 $5,700
■ Apple also released laptops with G3 chips and it was said to be the fastest notebook around. It was discontinued in 2001.

1998

iMac G3 $1,299
■ The 'Steve Jobs' effect on Apple was noticeable with the release of the colourful G3, designed by Sir Jonathan Ive.

from System 7 to Mac OS 8. He also worked to introduce the new all-in-one iMac in 1998.

The iMac G3 was a bold statement with its gorgeous curved, egg styling and translucent casing in 13 different colours. Apple – seen as an outsider in a PC-dominated world – strived to set itself apart further but more positively with this machine, introducing two USB ports and deciding to ditch the floppy disc. It sold 800,000 units in five months. It was the start of a Mac revival.

For some companies, it was impeccable timing. Feral Interactive was founded in 1996 solely to port and publish Mac games, going on to work on some of the biggest videogames around from *Max Payne* to *Worms 3D*. It also injected new life into MacSoft which ensured the first commercial port of *Quake* was on the Mac. *Sid Meier's Civilization II* was brought across too, and *Tomb Raider II* was converted following success on Windows and the PlayStation. It looked a treat with a 3D accelerator card installed.

Blizzard ensured its releases were made available for the Mac as well as Windows, bringing the likes of *StarCraft*, *Warcraft II: Battle.net Edition*, *Diablo II* and *World Of Warcraft* to Mac. It helped enormously that the new Macs were aimed at consumers as well as businesses. Their affordability and growing user base opened up the gaming market further.

But what was Apple's stance towards videogaming this time around in this new era? Favourable as it happens. "I reported directly to Steve Jobs, so I had the opportunity to speak with him at length about videogames on the Mac," says Peter Tamte, who left MacSoft in 1998 and worked as the senior director in consumer marketing for Apple up until 1999. "Steve was a huge supporter of Mac gaming – as were many other senior Apple executives in the company. In fact, there were a number of other senior executives at Apple who I would describe as core gamers." ▶

» The iMac G3's revolutionary design partly saved the Macintosh and unleashed a flurry of new games.

Killer Apps.

Nine games that defined the Mac

BALANCE OF POWER

■ This innovative Mac-first strategy game by the acclaimed designer Chris Crawford centred on the politics of the Cold War and allowed gamers to choose sides. It had AI so complex a book of the same name emerged a year later detailing the formulas Chris used.

THE COLONY

■ This was initially developed on the 128k Mac until the 512k version was released. The game, which involved repairing a ship and preventing an alien takeover, rendered its 3D graphics in real time and it was named as one of the best games of 1988.

DARK CASTLE

■ Side-scrolling puzzler *Dark Castle* with its rock-throwing hero may have had monochome graphics but the level of detail across the game's 14 levels more than made up for it. Controlled via keyboard and mouse, it spawned sequels and a colour version.

CRYSTAL QUEST

■ Patrick Buckland's *Crystal Quest* has been dusted off and revived many times since 1987. As well as frenetically moving around space, avoiding aliens and collecting crystals to open a portal to the next level, gamers could edit the graphics and audio.

SIMCITY

■ Having enjoyed creating maps within the game *Raid On Bungeling Bay*, Will Wright began work on his city-building sim, *SimCity*. It introduced the premise that has held firm through subsequent sequels and it suited the typical, thoughtful, Mac gamer.

MAELSTROM

■ Ambrosia was an important name for Nineties Mac gamers, producing copious numbers of shareware games including the *Asteroids* clone, *Maelstrom*. With 256-colour animation and addictive action, it brought an arcade experience to the Mac II.

MARATHON

■ Back when Bungie was a Mac-only developer, it stunned gamers with this epic sci-fi FPS. Allowing for eight-player action, it was immediately seized upon by game-starved Mac users of the Nineties and it eventually spawned a trilogy.

MYST

■ This was constructed in HyperCard over two years by a team at Cyan headed by brothers Rand and Robyn Miller. It was packed with atmosphere as well as puzzles to solve. The PC version sold far more copies but the Mac is where is started.

MYTH: THE FALLEN LORDS

■ Bungie's next game was another superb Mac-originated title: a RTS focused on individual soldiers fighting their own battles. It was also a technological feat of genius, thanks to its advanced physics engine.

1999

Power Macintosh G3 $1,299

■ A new G3 was released as a stylish blue and white model but it only lasted for eight months.

Power Mac G4 $1,599

■ The G4 line of fast Macs were called supercomputers by Apple and they replaced the Power Macintosh G3.

iBook G3 $1,599

■ Dubbed the 'Clamshell' for its unique transparent coloured plastic design, the successful iBook G3 computer included a PowerPC G3 CPU.

2000

Power Mac G4 Cube $1,799

■ The Cube was perhaps the most beautiful of all. It included a PowerPC G4 processor and it could include a DVD-ROM drive.

2001

iBook G3 Snow $1,299

■ The clamshell design was ditched in favour of a traditional looking, yet smaller laptop, that had a higher-res screen.

PowerBook G4 $2,599

■ The first line of these laptops had titanium or aluminium bodies housing 400 or 500MHZ PowerPC G4 processors.

Interview: Peter Tamte.

He set up MacSoft and worked for Apple, Bungie and Destineer. Few people know Mac gaming so well

Why did you decide to set up MacSoft and the subsidiary MacSoft Games?
As an avid Mac user, I noticed three kinds of software missing on the Mac: big PC games, key consumer productivity tools and inexpensive consumer software. I believed the Mac market was large enough to support all three. Almost immediately, games became the largest segment for us. Throughout MacSoft's first decade, games were typically around 65 per cent of our sales.

Why didn't games figure highly on Macs during the Eighties?
Apple management didn't want the Mac to be perceived as a toy, so Apple did very little to encourage games on the Mac. The big publishers were also generating more revenue on other platforms, so they didn't perceive to make their games available for the Mac to be worth the distraction it would cause to their more lucrative development and marketing efforts.

Why were the Nineties a better time for Mac gaming and how did MacSoft contribute to that success?
Apple leadership began seeing how Apple's earlier failures in videogames had hurt the Mac and MacSoft became the largest advertiser in all the major Mac publications. It raised the visibility of Mac gaming which helped demonstrate the economic viability of Mac gaming both to Apple and to other game creators. This helped us reverse a cycle of decline, and we began seeing the creation of new Mac games companies, as well as major publishers growing their interest in the Mac range.

Was there a 'typical' Mac gamer?
The typical Mac gamer tended to be more interested in strategy, and real-time strategy, games than the typical PC gamer. The Mac market skewed a little more towards Strategy and RTS versus FPS on PC. Also, since the number of core gamers on the Mac wasn't much, much lower than on PC, only core games that also had very broad appeal could be successful on the Mac.

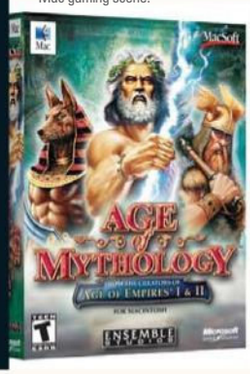
Why did you join Bungie after working at Apple?
I got totally hooked on *Myth*. I loved the emphasis on tactics, the rich stories, and immersive world that Bungie created.

You stuck with the Mac when creating Destineer in the Noughties. Why?
I think there was a golden age of Mac gaming in the early-Noughties. Because of the Apple Stores, we had an awesome way of reaching millions of Mac users. Plus, we could sell through Best Buy and many other superstores worldwide. This made it possible for MacSoft (which Destineer bought from Atari in 2003), as well as a few other Mac games companies, to deliver most of the big PC games to the Mac market very quickly after they came out on PC.

» *Myst*, which originated on Mac, was a much-ported game, even finding its way to the Nintendo DS.

» *Halo* was originally earmarked for the Mac and it was unveiled in 1999 by Steve Jobs. Bungie was sold to Microsoft but *Halo: Combat Evolved* was released on the Mac in 2003.

» MacSoft published many games which had originated on other formats, helping prop up the Nineties Mac gaming scene.



» Today, there are thousands of games available for the Apple Mac thanks to the Mac App Store.

It was for this reason Apple replaced the iMac's graphics chip right after the original iMac launched and why Apple even released updates to the entire Mac OS to support the needs of specific games. Having built-in Ethernet, a sharp display and a big hard drive also worked. The resurgence even persuaded MacPlay to come back in 2000, licensed from Interplay by United Developers. *Baldur's Gate II* and the first two *Fallout* games were brought across.

What's more, Ron Johnson was appointed the senior vice president of retail operations and Apple opened its first store in May 2001. "Apple also allocated large amounts of shelf space for games in its stores, and its staff worked with retailers around the world to be sure they had good selections of Mac games in their stores throughout the early-Noughties," Peter added. "Apple also regularly featured games in its marketing efforts. They were good times for Mac gaming."

Even so, Peter did end up leaving the scene. After departing Apple, he had become executive vice president of Bungie and its game, *Halo*, had been showcased by Steve Jobs at the MacWorld conference in 1999. Although it was pencilled in for a Mac release in 2000, Microsoft's purchase of Bungie made the game an Xbox-exclusive. It would be three years before *Halo* would see the light of day on the Mac.

"I was involved in the sale, and very much in favour of it," Peter tells us. "The main reason we wanted to sell to Microsoft was because the world's most powerful company at the time was giving us the opportunity to redefine console gaming. This sounds dramatic but, it was exactly how we saw it and it is what happened. This kind of impact is a once-in-a-lifetime opportunity that we would have been foolish not to pursue."

2002

iMac G4 $1,799
■ Introducing a LCD flatscreen perched on an adjustable arm to the Mac range, the all-in-one came bundled with an Apple Pro keyboard and mouse.

eMac $999
■ The 'e' in eMac stood for education because the system was originally intended for use in schools and colleges. It contained a PowerPC G4 processor.

2003

iBook G4 $1,099
■ The G4 processor was introduced to the iBook line and a slot-loading optical drive replaced the tray. The range lasted until 2005.

Power Mac G5 $1,999
■ This powerhouse came in a lavish aluminium case with a mesh front and it was said to be the speediest computer.

2004

iMac G5 $1,899
■ The G5 was the last iMac to use a PowerPC processor but it brought a fresh design – one that endures today – to the desktop line-up.

2005

Mac Mini $699
■ A keyboard-less, mouse-less, display-less Mac Mini measuring just 51x165x165mm opened Mac computing to a much wider userbase.

» Many older games including *Grim Fandango* originated on the PC but have now found a home, in a remastered form, on OS X.

> "We wanted to sell to Microsoft because the world's most powerful company was giving us the opportunity to redefine console gaming"
>
> Peter Tamte

2006
Death of the PowerPC

Apple had followed up the PowerPC G3 processor with the G4 and G5 and they had come with some weird and wonderful designs. The kookiest was the iMac G4 which had a screen atop an egg-shaped base while the iMac G5 was a precursor to the look of the current iMacs. It was also the last to use a PowerPC processor. In 2006 – five years after Apple had ditched Mac OS in favour of OS X – the Intel iMac was unveiled. It coincided with the introduction of the MacBook, finally laying to rest the iBook, which had been popular since 1999 and the PowerBook which had been a staple in the market for a further eight years.

By this point, Apple had become a rather different kind of company, a company which had revolutionised music, thanks to the iPod – which was launched in 2001 – and iTunes. The iPhone would be unveiled in 2007 but the Mac was still a flagship Apple product and Intel had finally got its way, much to the annoyance of a strong contingent of Apple stalwarts annoyed that their machines were becoming too PC for their liking.

The many changes up to 2006 had some negative effects on gaming (the switch to OS X had eventually killed off the classic environment with the release of Leopard, effectively cutting off a huge back catalogue of games) but the move to Intel had the bonus of allowing Windows to dual-boot on Macs which widened the number of playable games. TransGaming also released Cider which allowed Windows games to run as if they were made for Mac OS X and needed no rebooting. It wasn't all good – the switch to Intel wreaked havoc with many emulators upsetting the Mac's retro community - but the growing number of games meant the Mac was finally coming out of the cold and more games than ever began to be released.

At Apple's annual conference in June 2007, EA co-founder Bing Gordon said the publisher would release Mac games simultaneously alongside Windows equivalents, so long as an Intel processor was present. It heralded the release of *Need For Speed Carbon*, *Command & Conquer 3: Tiberium Wars* and *Battlefield 2142,* among others. The switch away from PowerPC worked for many developers. EA did not have to use Aspyr Media to rewrite code, for instance. It also ensured enough content for Steam to fill a new OS X launch in June 2010. *Portal*, *Team Fortress 2* and *Half-Life 2* could be played on the Mac.

Mac By Numbers.

1979 The year Macintosh development began

$500 Cost of producing the first Mac

$1,000,000,000 The value of desktop publishing to Apple by 1988

27 Steve Jobs' age when he unveiled the Mac

1991 The year a Mac Portable sent first ever email from space

48 Dev team signatures in the Mac 128k

800,000 Debut iMacs sold in 1998

72,000 Macintosh 128ks sold in 100 days

One more thing...

A few months after Steam's move, the Mac App Store was announced at Apple's Back To The Mac event. It was released in January 2011 as a free update for Snow Leopard users and it chalked up more than a million downloads in 24 hours.

But it had a knock-on effect. Apple began eliminating the software sections in Apple Stores, forcing Mac game sales online and retailers felt they could not justify the shelf space for Mac Games. "Worse, for MacSoft, Microsoft refused to let us sell Mac versions of *Age Of Empires*, *Halo*, and other games online," says Peter.

Yet the Mac App Store has worked well for indie games – the likes of *Machinarium* and *Braid* are popular titles and there are lots of retro games including *Grim Fandango Remastered*. At the same time, the emergence of the third-party multisystem emulator OpenEmu has proved to be revolutionary for opening up retro gaming and making older systems accessible.

Apple now takes gaming much more seriously than it did before. It knows games are an important to its mobile devices, computers and for Apple TV's success and it appreciates they have a strong place on Macs too, whether its a MacBook, MacBook Air, MacBook Pro, iMac, Mac Pro or Mac Mini. That may not have been the intention for the original Macs but Steve Jobs, who died on 5 October 2011, would no doubt be pleased. "I want to put a ding in the universe," he once said. With the Macs, he did just that.

2006

iMac $1,299
■ Steve Jobs announced the new Intel-based iMacs to world. The case design would remain the same but the computers would be faster.

MacBook $1,099
■ The MacBook was also given new Intel chips – the Core Duo – but the early models were recalled due to some sporadic overheating.

MacBook Pro $1,999
■ The same treatment extended to the MacBook Pro – a machine that had Intel chips, built-in iSight and Apple Remote.

Mac Pro $2,499
■ With two 2.66GHz Dual-Core Intel Xeon processors and twice the performance of a Power Mac G5 Quad, this was a mighty fine, but costly, machine.

2008

MacBook Air $1,799
■ Originally available only as a 13.3-inch model and said to be the thinnest of all notebooks, this range continues to this day.

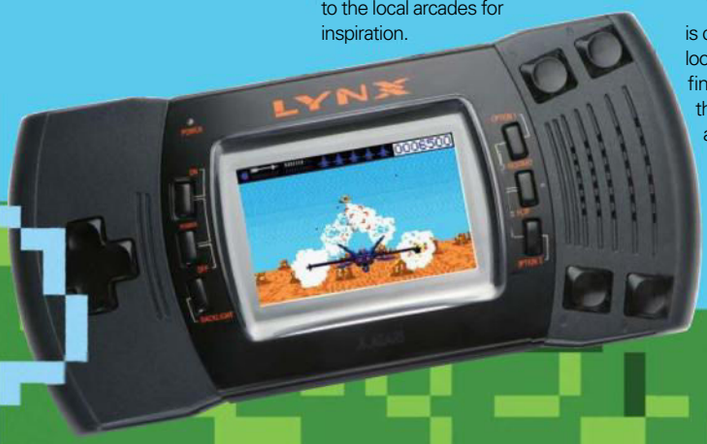
Present

Six ranges From $499
■ Today, Apple continues to sell the MacBook, MacBook Air, MacBook Pro, iMac, Mac Pro and Mac Mini, with OS X El Capitan as the current operating system.

BLUE LIGHTNING

1989 saw the debut of the world's very first colour handheld, but the console really needed a game to show off what the Lynx was capable of. Kieren Hawken discovers how Epyx's Blue Lightning did just that…

In the summer of 1987 Sega Enterprises unleashed the first game to use the upgraded version of the famous Super Scaler hardware, *After Burner*. It set the arcades alight, enabling audiences everywhere to take control of a F-14 Tomcat fighter jet and pretend they were Maverick in *Top Gun*. Home versions started to appear throughout 1988, although none of them were quite able to capture the magic of the arcade game, mainly because of deficiencies in the hardware. Over in California, software developers Epyx and the team behind the Commodore Amiga were trying to put the finishing touches to the Handy, a 16-bit colour handheld that would become the Atari Lynx. As we all know, every system needs games so the team decided to make a few visits to the local arcades for inspiration.



One of the key people in this team was graphics artist Arthur 'Art' Koch. He had been commissioned with programmer Stephen Landrum to design and produce a 3D flying/combat game and remembers those little jaunts fondly. "RJ (Mical) would take us all to the mini kart track to play arcade games, *After Burner* being one of them," he recalls. "That's probably where I got the notion, when I was asked to make art for a flying game, that it would be the plane in third-person, rather than a cockpit view. I think Stephen was influenced by a first-person cockpit view game like the computer game *Falcon*. Playing arcade games was much like studying art history in art school. *Falcon* was a hardcore flight simulator that was hard to play so I wanted to go more in the arcade action style of gameplay and graphics."

The inspiration of Sega's *After Burner* is clear for all to see when you take one look at *Blue Lightning*, but we wanted to find out a little bit more about just how the development of the game came about. "I had been paired up with Stephen to make a flying/shooting game," recalls Art. "His idea was a first-person shooter from the cockpit of an airplane, but nobody told me this until after I created all the views to animate a third-person F-16. Steve scaled it all down so it would fit in memory and ran with it as third-person shooter. I modelled the plane in 3D and rendered all the frames of animation to draw over, so I was kind of attached to using that art. Thankfully Steve was one of the few engineers I worked with that would meet an artist halfway. He really strained his brain to figure out how everything should rotate, scroll and scale in the third-person rather than first-person, as he originally had in mind. I like to paint landscapes and sit in the window seat of an airplane when I travel so it was exciting to try and recreate that in a game." With the design of the game finalised Epyx needed to come up with a name and Chuck Sommerville was one of key people involved the Handy

» *Blue Lightning* features some really impressive explosions.

» Throughout each level the game will give you updates on how the current mission is going.

» A handy password feature lets you skip earlier levels. This one recreates the *After Burner* canyon run.

» *Blue Lightning* featured great technology and lots of explosions. What's not to love?

project. "I still remember the meetings we had when we were developing the game at Epyx, in fact it was me who came up with the name! I remember handing a piece of paper to RJ Mical with *Blue Lightning* written on it, he loved it and said, 'That's it! We have a name!'" No doubt Chuck was inspired by the film and TV series *Blue Thunder*, which saw a high-tech helicopter flying into various combat zones, much like the game.

Working on new hardware is sure to be exciting so we had to ask Art what it was like working with the Lynx in those early times, Art remembers the day he was first introduced to the system. "I started working at Epyx in 1988, mainly doing PC and Amiga games, while RJ Mical and Dave Needle were developing the Handy and they needed games [produced] for it," he says. "They wanted new games as well as versions of popular existing games I had already worked on, so I got the nod.

"His was a first-person shooter from the cockpit of an airplane, but nobody told me this until after I created all the views to animate a third person F-16!"

Art Koch

Not only that, I was also lucky enough to be chosen to work on the game they wanted to bundle with the hardware to show off its capabilities!" That game was actually *California Games*, but *Blue Lightning* would be the title that would really show what the Lynx was capable of. *After Burner* was well known for its jaw-dropping scaling techniques and this would become one of the key features of the new machine. Scaling had never been seen on a home system before ▶

BLUE LIGHTNING 101

■ This superb launch game effectively played like Sega's *After Burner*, but in the palm of your hand. It features intense dogfights, but also gives you a fair amount of missions to take part in too. It's a solid little shooter that really highlighted the Lynx's hardware strengths.

IN THE KNOW

- **PUBLISHER:** Atari
- **DEVELOPER:** Epyx
- **RELEASED:** 1989
- **GENRE:** Shoot-'em-up
- **PLATFORM:** Atari Lynx

» This early mock-up of the game shows quite a different look to the final product.

DEVELOPER HIGHLIGHTS

ZARLOR MERCENARY (PICTURED)
SYSTEM: Atari Lynx
YEAR: 1990

CHIP'S CHALLENGE
SYSTEM: Various
YEAR: 1989

ESCAPE FROM MONSTER MANOR
SYSTEM: 3DO
YEAR: 1993

▶ so for the designers to cram this technology into a handheld was simply unheard of at the time. Art remembers the thrill of working with this technology. "For an artist it was exciting to have hardware scaling and four times as many colours as a PC at that time," he says. "We wanted to beat the slime-green palette of the Game Boy so bad! Just one artist and an engineer with not much input from the producers made for a lot of freedom to make a game we wanted using the technology available." Chuck also recalls the custom hardware coming in useful, "One of my favourite memories was doing the intro sequence for the game. I had written an animation engine that had high-speed scaling and rotation built into it that made stuff like that so easy. We also used it for the intro on *Electrocop, Slime World, Gauntlet 3* and several other titles too."

> **"When we coded it we really violated a rule the system designers insisted on, but we did it in a really beautiful way"**
> Chuck Sommerville

Even with this revolutionary new hardware the project was still not plain sailing because the Lynx, like any other system, still had its limitations and these were causing a few headaches for Art. "Creating a natural environment, a realistic plane and using text in such low resolution with a limited palette was a challenge," he remembers. "Imagining how the background tiles with sprites for trees, mountains, and objects could be combined in different ways and transition from one environment to another was difficult to visualise until the programmer got the art in the game and displayed it on the hardware. It was challenging to think in 2.5D and make it work." Programmer Chuck was never one to dwell on limitations too long and set about working with Stephen to overcome them. "The most amazing thing about *Blue Lightning,* for me, especially with it being in the opening line-up of games for the Lynx, was that when we coded it we really violated a rule the system designers insisted on, but we did it in a really beautiful way. Dave Needle and RJ Mical had always said that once the game was up and running we shouldn't be accessing the ROM again in any sort of way, and *Blue Lightning* violated that. We created a demo where the LED on the Lynx would flash every time we were accessing the game card, I started playing it and as I flew the plane around the light would flash as it streamed data for the landscapes and sprites directly from ROM. I later used this technique again on *Zarlor Mercenary* but in an even more intensive way, to prove it could be taken even further. I said to Art, 'We don't need these graphics and images until later, so

» The gold *Blue Lighting Demo Card* is an unplayable rolling demo of the game created for retail stores in order to show off the advanced Lynx hardware.

CLAWS OUT
The Games That Launched the Lynx in 1989

ELECTROCOP

■ Originally titled *Impossible Mission 3*, Epyx chose to rename the game after it started to differ too much from the platform-based gameplay of the previous titles. This technically impressive game was a blend of genres with puzzles, shooting and exploration all making up different parts of the gameplay.

CALIFORNIA GAMES

■ This game was chosen as the original pack-in for the Lynx and was already very well known to gamers everywhere, having previously appeared on a multitude of other platforms. While it doesn't feature all the events of earlier versions, it's still worth owning due to its neat scaling effects and incredibly fun four-player Comlynx mode.

GATES OF ZENDOCON

■ Another visually stunning game, *Gates Of Zendocon* was an original project by Peter Engelbrite to try and cash in on other popular horizontal shooters of the day, such as *Gradius* and *R-Type*. Despite having over 50 levels and a wide range of enemies to blast through, the meagre power-ups and repetition will start to grate on you.

CHIP'S CHALLENGE

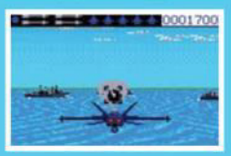
■ The last game to arrive (it just missed the US launch but managed to make the European debut), *Chip's Challenge* is probably one of the Lynx's most famous games. Chuck Sommerville's strategy puzzle game was so highly regarded that it went on to be converted to almost every platform under the sun, It was even re-released on Steam in 2015.

just store them away and we can load them when we need them.' He was really impressed. We actually wanted to take the 3D effects of *Blue Lightning* further and make a polygon-style tank game in the vein of *Battlezone*. I started to code it and had a demo version of the game to show Atari, but I couldn't get it running the way I wanted so I decided to can it. This is actually how I came up with *Chip's Challenge,* as I had just a couple of weeks left to present something to Atari and quickly came up with that."

The finished product was released to critical and commercial acclaim, the press of the time loved it, with *ST Format* awarding the game 94%, *The Games Machine* and *ST Action* gave it 87% and Italian magazine *Player One* opted for 95%. As well as the stunning graphics, *Blue Lightning* also received special praise for adding new elements to the tried-and-tested 'shoot-everything-out-of-the-sky' formula of *After Burner*. Epyx's take on the genre added new mission types that involved taking out specified ground targets, negotiating mountain ranges and even acting as a courier to deliver important documents. The designers also kept in all the things that arcade audiences loved in Sega's game, such as the barrel rolls, lock-on targeting system and the ability to turn on the afterburners for high-speed thrills. But was there anything they wanted to include that they couldn't? Art had some much grander ambitions for the game, as he elaborates: "There were loads of extra ground tiles, mountain, object and tree sprites that didn't repeat well so because of limited memory. So each level had to be cut down to just what would tile well without looking repetitive. I created an image with the extra art and created a world much larger than could be displayed on the Lynx. Ten years later when I created the environment for *Soviet Strike,* I no longer had to repeat tiles and I was free to create a big terrain texture based on some aerial photos that I took which looked much more naturalistic." To conclude the story of *Blue Lightning* we asked Art if he's pleased that the game is still so highly regarded. "Of course," he exclaims. "I wasn't really aware many people still knew about it until recently. It was a game where I had a lot of artistic licence and got to work on every aspect of the game as I was the sole artist. I worked on many games where I wasn't so limited technically but didn't have as much creative input into the design. ✱

» The last mission on the game also features allied buildings and vehicles that you have to be careful not to destroy.

» Later levels charge you to avoid enemy missiles, which requires a lot of manoeuvring.



» As well as land and air-based targets, some missions also feature seafaring foes.

» It's all too easy to fly into the environment, so watch what you're doing at all times.

Special thanks to Chuck Sommerville, Arthur Koch, Fred Gill and Kristi Louise Herd.

DOES LIGHTNING STRIKE TWICE?

Not in the case of Attention To Detail's ill-fated sequel it doesn't…

When Atari was busy developing its new 64-bit Jaguar console it looked back through the company's vast back catalogue to find titles that it thought would make a big splash on the new hardware. One of the several Lynx games that stood out, along with *Checkered Flag* and *Gates Of Zendocon* (*Crescent Galaxy* was intended to be the sequel), was, of course, *Blue Lightning*. Atari chose to release a sequel to the game on the Jaguar CD add-on, hoping that it would also wow audiences the way the first game did and make the Jaguar CD a must-have item for gamers. Unfortunately it didn't turn out as planned and the Jaguar CD version of *Blue Lightning* pretty much did the opposite of what was intended, leading consumers to question just what Atari was thinking using such a game to promote its new hardware.

The development team behind it was Attention To Detail, which had previously programmed the award-winning *CyberMorph*. We asked ATD co-owner Fred Gill just what went wrong. "ATD had grown and we hadn't managed that growth well, and we hadn't managed the team that produced it very well either," he says. "We completely underestimated how much work *Blue Lightning* was going to be, and I don't think we fully understood the gameplay when we started recreating it for the Jaguar. I remember squeezing the graphics in was painful, with weird shapes and lots of space being wasted. We just couldn't get the performance we wanted, and I am pretty sure the CD drive was a late addition to the project too, which only compounded our development problems even more. Kristi Louise Herd was the one of the team responsible for the game and has bad memories of the project. "It was absolutely awful," she says. "*Blue Lightning* has to be the game which gave me the most headaches in my career. ATD had an idea that we would scan all the backgrounds in and produce 3D models for the sprites, it was such a naff idea. It just didn't work and it caused me a lot of heartache as I was so unhappy not only with the game but with the company. The models looked great, but the scanned backgrounds looked awful. In the end, we had a mixture of drawn and scanned backgrounds. Needless to say, it got slated and I left the company not long after."

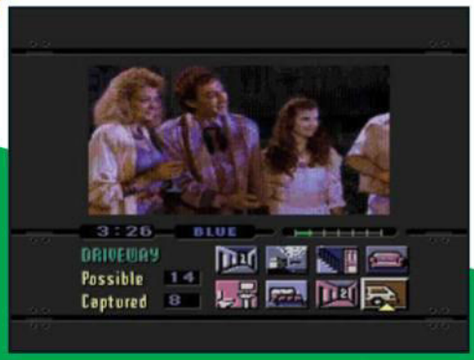
SEGA'S BIG GAMBLE

Extending the life of the Mega Drive might have seemed like a safe bet, but Sega lost consumer trust trying it. Nick Thorpe asks how a dead cert turned out so wrong…

Talk to anybody about console add-ons today, and they'll tell you one thing: they just don't work. Microsoft's much-touted Kinect is dead in the water after an initial wave of popularity, the PlayStation Move is in the same boat and the less said about the 64DD, the better. But of all the add-on devices throughout gaming history, two come in for high criticism above all others: Sega's Mega-CD and Mega Drive 32X.

If the conventional wisdom is that console upgrades don't work, these are the devices that granted us that wisdom. The Mega-CD sold 2.24 million units internationally over a four year lifespan, reaching only a small percentage of the world's 30 million Mega Drive owners, and added 210 games to the console's library. Far fewer 32X units were sold, and the system was discontinued after less than 18 months on the market with just 40 games released. Neither machine was a commercial success. Players have often questioned how and why the company botched two hardware releases in quick succession, and to find the answer it's necessary to cast your mind back to the early Nineties.

25 years ago, there was no widespread belief that console upgrades were a bad idea. In fact, the prevailing opinion was quite the opposite. The Japanese console manufacturers touted all manner of upgrade options for their machines, usually copying one another – when NEC announced a keyboard and a PC interface for the PC Engine, Sega naturally responded with a keyboard, a modem and a floppy disk drive for the Mega Drive. While very ▶



» Thanks to colour limitations, an ugly grainy look characterised most Mega-CD FMV games.

few of these devices ever made it to market, each manufacturer had some experience by 1991. Nintendo had released the Famicom Disk System, a reasonably popular interface for low-cost rewriteable disks. Sega had produced the likes of the Mark III FM Unit, a sound-boosting add-on, and the Mega Drive Power Base Converter which added backwards compatibility.

However, the goal everybody had their eye on was CD-ROM. More accurately, Sega and Nintendo had their eyes on CD-ROM because NEC was already there, having released a CD-ROM drive for its PC Engine console in 1988. Though it had been slow to gain momentum, by 1991 CD releases were starting to outnumber those on the PC Engine's HuCard format. For its part, Nintendo had started work on a CD-ROM upgrade in partnership with Sony long before the SNES had been released. If Sega didn't pursue such a device, it would invite criticism from observers and its investors.

What's more, Sega's management was convinced that videogames would soon move away from ROM cartridges. "We were pushing for CD-ROM because we knew that eventually we were going to have to program for it, and nobody knew how to," says Tom Kalinske, CEO of Sega Of America during the Sega CD's lifetime. "We had grandiose visions of what it was going to mean, I remember we were talking about being able to incorporate movie graphics with rock and roll concert sound, as well as 3D animation – this was going to be a fantastic thing. That was the dream."

If that sounds ambitious, it's because it was. Sega's vision was more ambitious than that of NEC, at the very least. The PC Engine's CD-ROM peripheral added a new storage medium and an additional 64KB RAM (256KB in the 1991 Super CD-ROM model). The Mega-CD did a whole lot more. A second Motorola 68000 CPU, clocked at 12.5 MHz, was added to the 7.67 MHz one already present in the Mega Drive. The system also received a RAM upgrade, with an additional 512KB main RAM, plus 256KB for video and 64KB for sound samples.

That wasn't all, though. A custom graphics chip and a Ricoh RF5C164 sound chip were also added to the system. In practice, this meant that the system could scale and rotate sprites – rather like the much-touted Mode 7 feature on the SNES, but with the ability to handle more objects simultaneously. The machine also gained the ability to play full-motion video clips. In terms of audio, the most obvious difference was that the machine could stream high quality audio from the CD, but the Mega-CD also provided a number of additional sound channels and improved sample playback for chip-based audio.

Mega-CD games could, in theory, outperform those on the stock Mega Drive and initial excitement was high as a result. The Mega-CD initially launched in Japan in

DID YOU KNOW?

■ According to Core Design, a whopping 80 per cent of UK Mega-CD owners bought *Thunderhawk*!

» Core Design did excellent work, pushing the Mega-CD's scaling capabilities to the limit.

» The 32X cartridge slot is slightly wider than a regular Mega Drive cartridge slot, making it useful as a makeshift import converter.

KEY COMPANIES

The larger third-party developers and publishers stayed away from the Mega Drive's add-ons, allowing less well-known companies to achieve prominence…

CORE DESIGN

SIGNATURE GAME: Thunderhawk

■ The UK studio is one of the most technically proficient developers to have worked on the Mega-CD, pulling off impressive games such as *Battlecorps* and *SoulStar* which made heavy use of sprite scaling effects to create 3D environments. However, Thunderhawk was easily its biggest commercial hit on the system.

DIGITAL PICTURES

SIGNATURE GAME: Night Trap

■ The most enthusiastic proponent of FMV-based games did a huge part to shape the image of the Mega-CD with its software, with *Sewer Shark* forming part of a popular bundle and *Night Trap* generating major controversy. DP is notable as the only third-party developer to have supported the 32X with disc-based software.

WOLF TEAM

SIGNATURE GAME: Road Avenger

■ Wolf Team was prolific on the Mega-CD, releasing 12 games in the machine's first two years. Many players will have encountered its games at some point, as *Sol-Feace* was part of bundles in both North America and Europe, while *Cobra Command*, *Road Avenger* and *Time Gal* all ended up in European bundles.

GAME ARTS

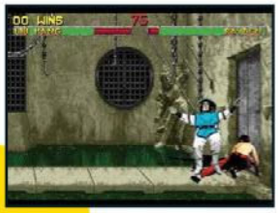
SIGNATURE GAME: Lunar: The Silver Star

■ *Silpheed* was a rare case of a Mega-CD game that truly looked like a giant leap above standard Mega Drive fare, but the shoot-'em-up was easily eclipsed by the *Lunar* games. These RPGs became cult hits and are amongst the best releases on the system. *The Silver Star* was recently re-released on iOS in 2012.

ACCLAIM

SIGNATURE GAME: Mortal Kombat II

■ The only third-party publisher to commit to the 32X in any meaningful sense was also emblematic of its problems. All of the company's games were enhanced versions of standard Mega Drive games, bulking up the library for those who had already bought in without offering anything to entice players to upgrade.



> **"I showed my son what Mega-CD games were like. He said 'This is horrible, I don't want to look at this!' He was right!"**
>
> Tom Zito

DID YOU KNOW?

■ The Multi-Mega never officially reached Japan as a games console, but it was licensed to Linguaphone which branded it the Education Gear.

» Here's *WWF Raw* on the standard 'vanilla' Mega Drive…

» …and here's the 32X version. Would this have sold you on the upgrade?

December 1991, and by March 1992 it had already sold an impressive 200,000 sales. However, reality soon intruded on the dream start. Most of the Mega-CD's technical benefits were not made obvious, as early third party software offered little that the Mega Drive couldn't do save for some nice CD audio. In fact, quite a few of those games were converted back to cartridge for international release. Sega's own support was woefully lacking, with the platform holder publishing just five games during the machine's first year and squarely targeting the Japanese market with them. Disappointing software and the Mega Drive's low popularity in the region meant that this initial momentum stalled during the remainder of 1992, and the machine never recovered in Japan – the next 200,000 Mega-CDs took three years to sell, rather than three months.

In order to put together a stronger line-up for the North American launch in October 1992, Sega had to involve Western development talent. "I was very close to Olaf Olafsson at Sony, and his studio down in Santa Monica," Tom recalls. Sony had been working on CD-ROM games for the PlayStation (at that time, an all-in-one SNES CD console), but had recently been spurned by Nintendo in favour of Philips and was all too keen to help its primary competitor. "We knew they were doing some work on it, so that was how we all got together on this and decided to divide the work that Tom Zito had been doing."

Unlike other developers, which had been confronted with the improved hardware and struggled to come up with ideas, Digital Pictures already had the ideas in the form of games featuring live-action video footage – they had just been waiting for the hardware that could realise them. "Back in the Eighties, we had developed both *Sewer Shark* and *Night Trap* as two games for the Control-Vision system, which was the games system we had developed at Isix for Hasbro that was going to use VHS tapes as the medium of software," explains Tom Zito, former CEO of Digital Pictures. Hasbro cancelled the release of the system shortly before launch, as it couldn't be launched for the price point that the company had envisioned. Signing up with Sony to make the games for the SNES PlayStation had proven similarly fruitless. "We basically sat around for several months waiting for a development machine, and finally Olaf called me and said, 'You know what, it's not going to happen. We just weren't able to work out the deal.' I thought that was the end of everything."

The third time proved to be the charm, as the Mega-CD proved able to handle video – albeit with some serious coding work, as there was no off-the-shelf ▶

» Even with frames edited to suit the console, FMV games like *Cobra Command* exposed the Mega-CD's poor colour handling.

» *Metal Head*, like many 32X games, was visually distinct from Mega Drive fare – but struggled to offer strong gameplay.

codec available to do the job. There was one major fly in the ointment for Digital Pictures, though. For all the Mega-CD had expanded, the Mega Drive's severely restricted colour palette had remained untouched, lending FMV a grainy look. "About a year ago, I found a box with a Genesis and Sega CD, so I showed my son what the games were like. He said, 'This is horrible, I don't want to look at this!' He was right!" Still, it wasn't something Tom Zito was concerned about. Digital Pictures' Mega-CD games looked like nothing else on the market, and by this point nobody was too concerned about how the machine would do. "We didn't think about that, we were just pleased to finally get the games made," he recalls.

"Our plans were, I think it was for two or three hundred thousand units of hardware in that first period, and then I think we expected it to grow beyond that," says Tom Kalinske when asked about Sega's expectations for the machine. While production problems limited the Sega CD's NA launch, it did reach the 300,000 unit mark by March of 1993. The European launch in April 1993 was received with similar enthusiasm.

It was that year that would turn out to be the machine's peak, as developers were able to deliver on the hardware's potential by this point. Malibu Interactive offered up an awesome sprite scaling driving game in the form of *Batman Returns*, which showed that the Mega-CD could pull off a convincing impression of coin-op technology. Core Design delivered the likes of *Jaguar XJ220* and *Thunderhawk*, both of which also made extensive use of sprite scaling. Sega's Japanese teams finally released some big hits too, having put together an excellent conversion of Capcom's *Final Fight* as well as the obligatory *Sonic* game.

However, the overall impression of the machine wasn't overwhelmingly positive. While the highlights were there to be found, many games amounted to little more than cartridge releases with enhanced soundtracks and FMV elements. "I think that was a valid criticism," Tom Kalinske admits. "We didn't bring enough new to the party. It wasn't as different as it needed to be. Later on, one of the advantages was its tremendous storage capacity so it was great for bringing back a collection, but just doing cartridge games on a CD-ROM was not a step forward."

DID YOU KNOW?

■ Surplus 32X hardware was recycled for use in Sega's Picture Magic, a graphics tablet which interfaced with the Digio SJ-1 camera and PriFun printer.

By this point, the Mega-CD was stalling commercially. Late in 1993, Nintendo Of America's Peter Main stated, "My friends over at Sega haven't found a market for CD at $299. Sega CD is dead in Japan, dying over here and suffering in Europe." It was a damning statement, as should be expected from the representative of a competitor, but it was the truth. The Mega-CD's sales had flatlined in Japan. In Europe, software for Commodore's new Amiga CD32 was outselling Mega-CD software. By the end of the year, it was clear that the Mega-CD would never be a mass-market hit.

The problem with the Mega-CD was one of value. All of the extra capabilities that had been added to the machine gave it an enormous price tag of £269 – a little over double the £129 that the Mega Drive and SNES were retailing for. How much did this hurt the system? "I think quite a bit," Tom Kalinske says. "In those days that was a really expensive product, and that certainly limited the potential market considerably."

This was a problem that Sega was aware of and tried to mitigate – in both the UK and the USA, the machine was bundled with more than one game at launch, and later packages included as many as five CDs. Ultimately though, the hardware only fell to an attractive price point in 1995, when people were perfectly content to hang back and get a brand new console.

Was the Mega-CD technologically advanced? Absolutely, but it wasn't so much so that it was worth twice the cost of the basic console. Most of its benefits were tough to sell – static screenshots couldn't convey the effect of improved scaling or CD audio, after all. To the average consumer Mega-CD games like *Final Fight* and *Sonic CD* didn't look a great deal different to what was available on the Mega Drive.

The only games that seemed markedly different to existing cartridge games were the FMV-based games. However, even the novelty of these failed to hook players. "We really thought that there was a big range of games that we could do for this that had never been done before," says Tom Zito. "We had hurtled into the Sega CD business without thinking if we were still getting into the field we were getting into – a more casual gaming experience." The price of the Mega-CD meant that the players that bought it were either rich or very dedicated gamers, and FMV games just didn't offer the what was required to satisfy the hardcore.

"People often ask me, 'Was the Sega CD a mistake?' I don't believe it was a mistake at all," asserts Tom Kalinske. That might sound stubborn but the executive was thinking of Sega's long-term position. "I think we knew that with the high price, it wasn't going to be huge initially," says the former CEO. "The point of it more was that we had to learn how to do this – it was really a learning experience for all of us, as to what we were going to be able to do. If you look at what

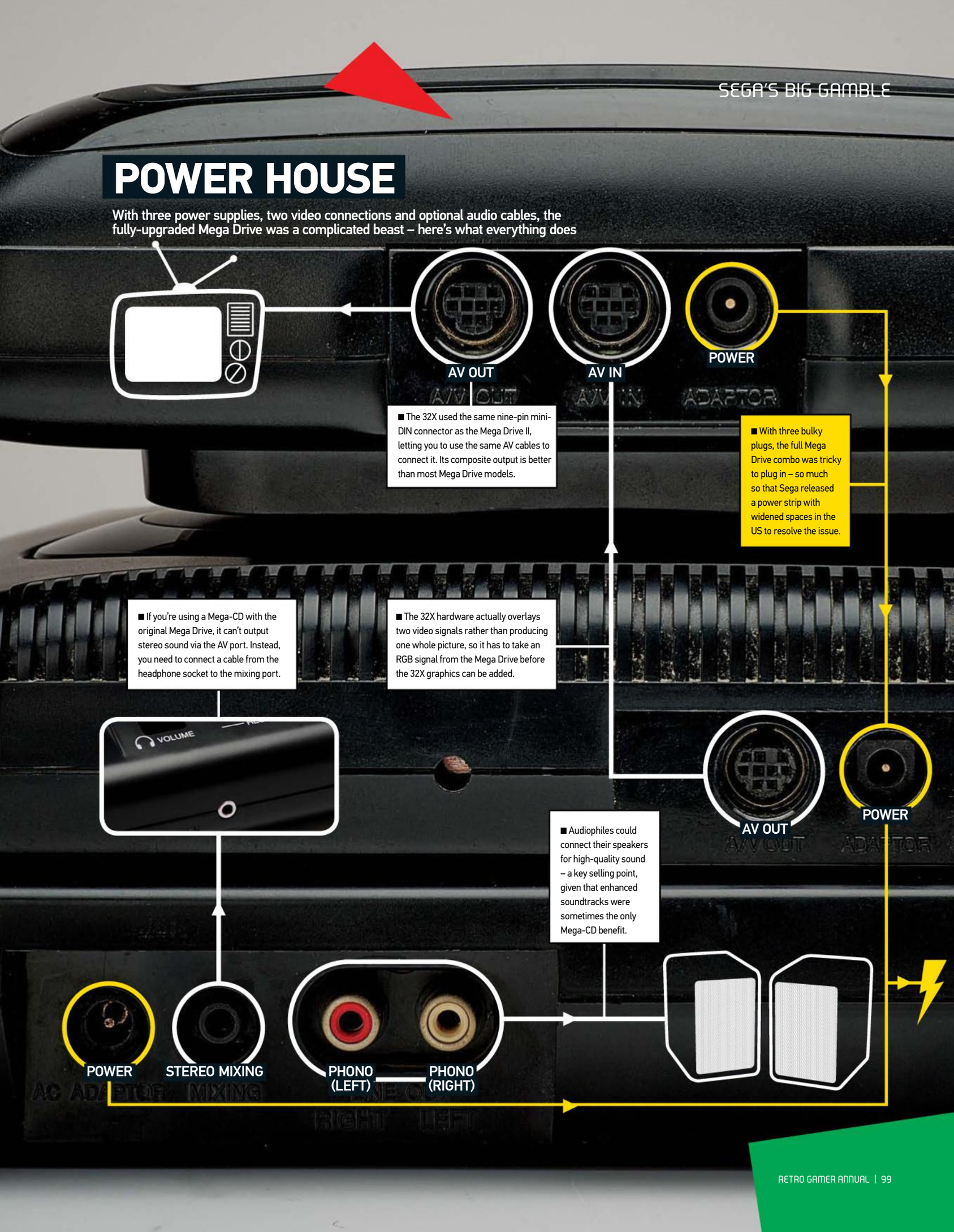
"We didn't bring enough new to the party. It wasn't as dramatically different as it needed to be"

Tom Kalinske

» *Final Fight CD* is still a great conversion, but the benefit of CD is hard to convey in a screenshot.

POWER HOUSE

With three power supplies, two video connections and optional audio cables, the fully-upgraded Mega Drive was a complicated beast – here's what everything does


AV OUT
AV IN
POWER
■ The 32X used the same nine-pin mini-DIN connector as the Mega Drive II, letting you to use the same AV cables to connect it. Its composite output is better than most Mega Drive models.
■ With three bulky plugs, the full Mega Drive combo was tricky to plug in – so much so that Sega released a power strip with widened spaces in the US to resolve the issue.
■ If you're using a Mega-CD with the original Mega Drive, it can't output stereo sound via the AV port. Instead, you need to connect a cable from the headphone socket to the mixing port.
■ The 32X hardware actually overlays two video signals rather than producing one whole picture, so it has to take an RGB signal from the Mega Drive before the 32X graphics can be added.
VOLUME
AV OUT
POWER
■ Audiophiles could connect their speakers for high-quality sound – a key selling point, given that enhanced soundtracks were sometimes the only Mega-CD benefit.
POWER
STEREO MIXING
PHONO (LEFT)
PHONO (RIGHT)

EXTRA EXTENSIONS

Plenty more capabilities were added to the Mega Drive over its lifespan, with some meeting more success than others...

MEGA MODEM 1990

■ This modem operated at 1.2 kilobits per second and allowed players to operate online banking services, download games and play multiplayer games. It flopped quickly, resulting in scrapped international release plans and the removal of its expansion port from most Mega Drive models.

MULTIPLAYER

1993

■ Games like *Bomberman* really need more than two players, so Sega introduced this device to add extra control ports to the Mega Drive. A second version added support for EA's 4-Way Play protocol. The device proved reasonably popular, with the second model supported by almost 80 games.

SIX BUTTON CONTROLLER

1993

■ Adding an extra four buttons to the standard Mega Drive pad allowed the system to produce pretty faithful versions of arcade hits like *Street Fighter II* and *Mortal Kombat*. The pad's low price and connection to popular games meant that it sold well and was widely supported.

POWER BASE CONVERTER

1989

■ Introduced a few months after the launch of the Japanese Mega Drive, this unit added backwards compatibility with Master System cartridges and cards. In regions where the Master System was popular, it sold well enough to receive a second Mega Drive II compatible model.

MEGA LD

1993

■ This software format was based on LaserDisc media, and could only be played on Pioneer's expensive LaserActive player with the Mega Drive extension module installed. Pioneer was the only publisher to support this format, pushing out more than 20 titles to its audience.

▶ happened afterwards, everybody went to discs. In a way, we probably should have been working on it even earlier, to gain the experience of how to do it correctly."

So the Mega-CD was a misstep, for sure – but that's only obvious with the benefit of hindsight. The same can't be said of its partner in crime, the 32X. Having been bitten by the failure to generate a significant market for the Mega-CD, you might have thought that Sega would be wary of going back to the add-on idea. However, having won its market share by touting superior technology, Sega was afraid of losing its edge. At the start of 1994, the company was working under the assumption that the Saturn wouldn't complete its global launch until late 1995 – a timescale which left almost two years for the likes of the Jaguar and 3DO to gain traction.

"There was a discussion between Sega Of America and Sega Japan, about how long the Genesis could last, and what we needed to do to prolong its lifespan," recalls Tom Kalinske. "Initially, the argument was that we could get another year of life out of the Genesis before we had to introduce the Saturn. Japan disagreed with me on that, so as kind of a stopgap measure, the 32X came up." What's more, the position was that it was needed before the end of 1994.

DID YOU KNOW?

■ North American readers beware – the Genesis 3 is incompatible with both the Mega-CD and the 32X, so pick up an earlier model of the console.

While it was initially conceived as a standalone platform, a meeting between Sega's engineering teams concluded with the idea that an add-on would be a better idea – it would leverage the existing Mega Drive customer base and reduce the cost of entry. To make it a logical progression for developers, the machine used the same Hitachi SH2 processors as the Saturn, but with a lower clock speed and a different graphics set-up. The hardware provided decent polygon rendering capabilities and a greatly expanded colour palette, and could even be utilised by the Mega-CD.

The problem for Sega was getting it ready. "The other part of it was that we can't do this ourselves, we need support from Japan. There has to be a number of games that are developed in Japan for it as well as a number of games developed in the US – we know we can't launch a peripheral that only has a couple of games," explains Tom Kalinske. "That was where things sort of fell apart. There was the agreement to do that, but I think Japan was probably reluctant to do the number of software titles we wanted them to do."

By the time that development kits were available, barely any time was left for development, resulting in a permanent state of crunch time. "I think our start-to-end time on *Star Wars* was four months," says Steve ▶

"People often ask me, 'Was the Sega CD a mistake?' I don't believe it was a mistake at all" Tom Kalinske

» *Silpheed* looked like a quantum leap, but the polygonal background was just pre-rendered FMV.

HYBRID HEAVEN

The all-in-one solutions that couldn't save the Mega Drive add-ons

Making a hybrid unit is something that can work to drive up an add-on's adoption rates, but this approach didn't seem to work for Sega. The first attempt to do so actually came from JVC in the form of the WonderMega, an all-in-one version of the Mega Drive and Mega-CD released in 1992. A revised model followed in 1993 and saw release in North America as the X'Eye in 1994. Of these, only the early models of the X'Eye is compatible with the 32X.

Sega's Multi-Mega (or Genesis CDX in North America) was also introduced in 1994 as a limited edition model aimed at high-end buyers. Like the WonderMega, it's a hybrid Mega Drive and Mega-CD, but it also functions as a portable CD player capable of running on batteries. Additionally, the Aiwa CSD-GM1 was a portable stereo with built-in Mega Drive and Mega-CD support – this model was released in Japan in 1994, and remains an expensive rarity. Both machines support the 32X, though are not ideally suited for it physically.

No official units ever combined the Mega Drive and 32X, despite the much-hyped announcement of the Neptune. While casing prototypes were made and eventually found their way into the hands of some lucky collectors, no functional prototypes were ever produced. However, enterprising modders have found it possible to squeeze the 32X's innards into a Mega Drive II case – though this requires major sacrifices, such as the removal of the Mega Drive II's original cartridge slot.

SAME NAME, DIFFERENT GAME

All too often, the Mega-CD suffered from barely-enhanced cartridge conversions. Here are five games that broke the mould...

MEGA DRIVE

MEGA-CD

THE TERMINATOR

■ The Mega Drive version of *The Terminator* is a decent if somewhat short and easy run-and-gun, but the Mega-CD game is a whole different kettle of fish. The whole thing has been redesigned from the ground up, with more stages, a higher difficulty level and an excellent soundtrack.

BATMAN RETURNS

■ The cartridge-based game was a somewhat disappointing platformer, and it's included in full on the Mega-CD disc. However, a full second game in the form of an excellent 3D combat racer has been included, and you can choose to play the driving stages, platform stages or both together.

JURASSIC PARK

■ If you play the Mega Drive version of *Jurassic Park*, you'll get a fairly standard 16-bit platformer. The Mega-CD game was a sedate point-and-click adventure that attempted to use the advanced platform to its fullest, featuring pre-rendered 3D scenery akin to that of *Myst*.

ETERNAL CHAMPIONS

■ While most of the original content makes its way across to the *Eternal Champions: Challenge From The Dark Side*, the upgrade features new characters, new stages, rebalanced gameplay and cinematic finishing moves. It's one of the few essential upgrades over a cartridge release.

SAMURAI SHODOWN

■ Oddly, the Mega Drive and Mega-CD received two different conversions of the same game, with Saurus handling the cartridge version for Takara and Funcom developing the CD version for JVC. Neither version can be considered definitive, though the Mega-CD version is generally preferred.

"We worked seven days a week for four months straight, 12+ hour days were the norm" Steve Lashower

» The untextured polygons common to 32X games like *Shadow Squadron* looked dated next to Saturn and PlayStation games.

DID YOU KNOW?

■ The only game to achieve the triple crown of individual releases on Mega Drive, Mega-CD and 32X is Activision's *Pitfall: The Mayan Adventure*.

▶ Lashower, a former Sega Of America programmer. "We worked seven days a week for four months straight, 12+ hour days were the norm. The company provided us with lodging nearby and brought us in lunch and dinner. I recall working until 7:00 AM, heading over to the hotel to shower, driving to school (I was still finishing up my degree), returning to the hotel to sleep for a bit, then back to Sega." Resources were stretched, too. "We had one prototype dev kit. That went to Chris Warner," Steve recalls. "He was tasked with writing the renderer based on what little documentation was translated into English at the time. I was able to code up the majority of the game flow and UI without having access to a 32X development system." Despite the pressure, *Star Wars* turned out to be a good conversion of the arcade game and a solid reason to buy a 32X.

The 32X didn't have the Mega-CD's problem – a single look at a 3D game like *Star Wars* or *Metal Head* was enough to show you what the add-on brought to the table. The problem was that Sega was simply competing with itself and causing consumer confusion in the process. In the months surrounding the launch of the 32X, magazines like *Mean Machines* Sega had letters pages filled with people asking whether they should get a 32X or wait for a Saturn. The advice was to buy a 32X because the Saturn wouldn't be out for ages, but this soon changed. "It all goes back to the decision to launch the Saturn early," Tom Kalinske says.

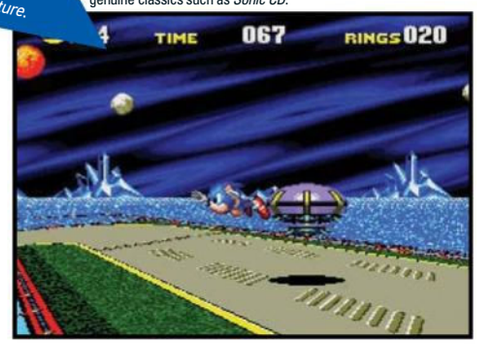
But if the arrival of a more powerful platform wasn't going to kill the platform, a lack of quality software certainly would. "After *Star Wars*, there was a huge push to get more 32X projects out the door," Steve explains. "Since we had experience with the console, quite a few projects were under development at Sega Interactive. With the exception of the excellent *Ratchet And Bolt*, most were laughably bad." How bad could they possibly have been compared to games like *Cosmic Carnage*? "One title comes to mind: *X-treme Sports 32X* was a mix of concepts that were neither extreme nor sporty," Steve says. "Sega Interactive was doing crazy stuff: the sprites for *Jet Ski Football* were painstakingly rendered by 3D animators on a SGI mainframe. Not many people could tell, as they were at most only 16 pixels tall."

"I think Sega really backed itself into a corner with the 32X," says the former programmer. "Most recognised it as a scaled-down Saturn and held out for the new console instead." With the more powerful 32-bit system pushed out ahead of schedule, developers didn't want to work on the 32X and players were already looking past it. Losing the argument over whether the Mega Drive remained viable had caused the 32X to come into existence, and losing the argument over launching the Saturn early had doomed it to irrelevance.

"Obviously the 32X was a failure," says Tom Kalinske. "It was a failure because we didn't develop enough good games in the US and we didn't get enough support from Japan. I've had players tell me that the enjoyed *Doom* on 32X, they thought that was just terrific, and I say, 'Was it worth the price you had to pay?' And they said yeah, from their standpoint it was worth the price they had to pay, so I don't know. From a business standpoint, it certainly wasn't successful."

Ultimately, the Mega-CD and 32X did nothing to damage the Mega Drive itself, which was already an successful machine for its time. People could safely buy into the platform at the time, knowing that there was already a huge software library out there and plenty of support to come. In later years, few enough people had experience with the add-ons to tarnish the Mega Drive's robust legacy – it's rare that you'll find anybody who judges the machine by its add-ons.

» Despite its poor reputation, the Mega-CD library contains some genuine classics such as *Sonic CD*.



But what the add-ons did do was damage faith in Sega, and the publicity surrounding them made it harder to buy into any of the company's new platforms. Introducing one failed add-on would have been an experiment gone awry, and Sega could have brushed off the Mega-CD – it had its supporters. Pushing two add-ons was wrong, but still not fatal. What soured consumers on the add-ons was a failure to support them. This came back to bite the company during later years – when Tom Kalinske's successor Bernie Stolar declared that, "The Saturn is not our future," at E3 1997, over two years before the Dreamcast would launch in the territory, people saw Sega as having abandoned a young platform for the third time in a row. It wasn't unreasonable to conclude that the same would happen to the Dreamcast, and that's what people did.

Ultimately, Sega's tale of woe would prove to be a cautionary story for the industry at large – don't gamble your successes away just because you're scared that someone else at the table has nicer cards. ✱

Whether you were working on a follow-up, working on a competitor or simply feeding arcade machines your hard-earned coins, Street Fighter II changed the gaming landscape. Nick Thorpe looks back at the impact of Capcom's classic brawler

***Street Fighter* was a game that made an impact, but it wasn't a huge impact. It was popular, in part due to its deluxe cabinet featuring pressure-sensitive** buttons (a gimmick co-developed with Atari), and did decent business in the arcades and on home formats. What's more, SNK headhunted Takashi Nishiyama and Hiroshi Matsumoto, the game's director and planner respectively. However, it wasn't a broadly influential game or one that particularly screamed out for a sequel.

As a result, Capcom found itself in a dilemma – it had established the *Street Fighter* brand and got some momentum behind it, so it was keen to continue using the name in some fashion, but the key players had left the company and it didn't particularly want to make a new one-on-one fighting game. The fighting genre wasn't exactly a huge deal in the arcades or at home, having seemingly peaked a couple of years earlier with the likes of *Yie Ar Kung-Fu*, *Way Of The Exploding Fist* and *International Karate*.

That's why the first two attempts to follow up on *Street Fighter* weren't competitive fighting games. *Final Fight*, a scrolling beat-'em-up designed to compete with the likes of the *Double Dragon*, was originally marketed as *Street Fighter '89* before being renamed. A year later, the infamously dodgy *Street Fighter 2010* arrived on the NES and ventured into safe platform shooter territory.

Just as Capcom wasn't keen to make a direct follow-up to *Street Fighter*, other developers weren't looking to it for inspiration. "I remember playing the *Street Fighter* machine at my movie arcade with the giant punch buttons and loving it despite those lame buttons," says Michael Latham, who worked on a variety of fighting games during his time at Activision and Sega. However, the older games were still the key reference points for his early work in the genre. ▶

RYU

SPECIAL MOVES
(WW) Hadoken: ↓↘→🔘
(WW) Shoryuken: →↓↘🔘
(WW) Tatsumaki Senpukyaku: ↓↙←🔘
(HF) Kuchu Tatsumaki Senpukyaku: ↓↙←🔘 (In air)
(SU) Shakunetsu Hadoken: ←↙↓↘→🔘
SUPER MOVE
(ST) Shinku Hadoken: ↓↘→↓↘→🔘

Art Attack

Mick McGinty talks us through some of his Street Fighter II box art

» Meditation hasn't done a lot of good for Dhalsim's hot temper.

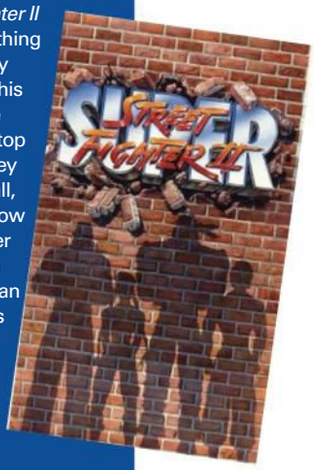
How much reference material were you given for an illustration such as this?

Hardly none. It was a Polaroid camera shot, Denny Moore sent me a couple of Polaroid shots that the manufacturers would send. The characters that they sent me, I saw them all in digital form. I'd get an idea of the background – "We've got this project called *Street Fighter*, it's very big in Japan, and we want a very American-looking image in order to promote it and put it on the cover." I just thought of a really dramatically lit alley scene with trash cans getting knocked over and the brick wall in the background. They might have even given me the choice on this one to choose the characters, and the most exciting and interesting one to me was Blanka – his cannonball would look great coming in from the left.

Turbo is one of my more favourite ones, I don't know why. I guess just because it was simple. I remember doing the first couple of sketches, and Denny Moore took it to Capcom and they said, 'We really want this punch attack.' What they really wanted to facilitate was a whole bunch of 'ghost hands,' and what I had was one big punch going straight at Sagat. But I just like it because it's really straightforward and you get a good look at the characters. I went into muscle building magazines and tried to make E. Honda sort of super big and muscular, rather than just layers of fat – especially the shoulders. They said, 'Go crazy, make these guys look really bad – they're the best fighters in the world and they're knocking each other around the room.'

This one's a very different look from the other ones, as it's just the character silhouettes…

Well, how it started was that I did just the top section, that just says *Super Street Fighter II*. Then Denny says, 'Okay, what they want is to have you re-illustrate this *Street Fighter II* in wet paint' – I literally copied something that was given to me – "and then they want the word super busting out of this brick wall." And that was actually the cover to some other format, just the top part, and then the shadowy thing, they said, 'We want you to do a bigger wall, with some light that's casting a shadow of other characters,' – I can remember the Indian chief and the little girl with the beret, she reminded me of a Cuban martial arts girl, I don't know why. It's kind of a weird-looking illustration when you think about it.



Game Series Key

WW Street Fighter II **CE** Street Fighter II': Champion Edition
HF Street Fighter II' Turbo: Hyper Fighting **SU** Super Street Fighter II
ST Super Street Fighter II Turbo

» Throwing is an important tool to use against defensively-minded opponents.

» Bringing bosses into the mix was a huge boost to *Champion Edition*'s multiplayer.

▶ "1984 was the year that my desire to make a fighting game started. I was a senior in high-school and arcades were at the heights of being a huge thing," Michael explains. "*Karate Champ* was the first 2D fighting game where I could challenge other players. I was obsessed with this coin-op. Countless hours and quarters went into playing the computer training hard so I could beat any challenger. I remember it being hard to find challengers as people would get angry if you beat them quickly, as it seemed like a waste of a quarter." Alongside *Kung Fu Master* and *Karateka*, this was the game that Michael was thinking of while working on the 1989 fighter *Tongue Of The Fatman*.

There are conflicting explanations of the actual circumstances that caused the eventual production of *Street Fighter II*, but the most corroborated story from developers is that Capcom had asked for a *Final Fight* sequel and the team decided to make a *Street Fighter* sequel instead – an ironic reversal of the situation two years prior. With the previous game's lead designers elsewhere, a new team took on the challenge and brought with them some new ideas. For a start, art was a huge part of the game design, with half of the staff working on it. This allowed Capcom to generate a huge number of ideas and provide a cast that was almost entirely new, with only three returning characters – protagonist Ryu, final boss Sagat, and player two's Ryu clone, Ken. The new characters were to be based on broad stereotypes of various nationalities.

The other big difference was that *SFII* would be focused on competitive gameplay, an aspect of arcade gaming that had been crucial to the

Ken

SPECIAL MOVES
(WW) Hadoken: ↓↘→ P
(WW) Shoryuken: →↓↘ P
(WW) Tatsumaki Senpukyaku: ↓↙← K
(HF) Kuchu Tatsumaki Senpukyaku: ↓↙← K (In air)
(ST) Kama Barai Geri: ↓↘→ K
(ST) Nata Otoshi Geri: →↘↓ K
(ST) Oosoto Mawashi Geri: ←↙↓↘→ K
(ST) Inazuma Kakato Wari: Hold K during any Geri attack
SUPER MOVE
(ST) Shouryu Reppa: ↓↘→↓↘→ P

» Chun-Li was the first of many female fighters to appear in the *Street Fighter* series.

CHUN LI

SPECIAL MOVES
(WW) Yousou Kyaku: ↓(In air)
(WW) Spinning Bird Kick: ↓(Hold), ↑
(WW) Hyakuretsu Kyaku: (Tap) repeatedly
(HF) Kikouken: ←(Hold), →
(ST) Tenshou Kyaku: ↙(Hold), →↓←↗
(ST) Inazuma
SUPER MOVE
(ST) Senretsu Kyaku: ←(Hold),→←→

> "The characters in the Street Fighter series are fantastical"
> Yoshinori Ono

success of early games like *Pong*, but which had fallen out of favour over the years due to the rise of co-op play and high score tables. Capcom's idea was that encouraging two-player games would maximise revenue for arcade operators, and unlike a co-op game players couldn't feel cheated by a high difficulty level. Of course, the original game also had a multiplayer mode, but players were limited to two characters with identical abilities. This was a much poorer experience than the single-player mode, which allowed players to fight ten opponents with a variety of techniques.

Street Fighter II proved to be a major production for the era. With a development team of approximately 35, the game cost almost $2.5 million to make. It was a real gamble for a sequel to a game that hadn't set the world on fire, but one which had evidently paid off when you saw the game's astonishing visuals and heard the excellent music. But while those aspects were great, what sent it over the top was the design.

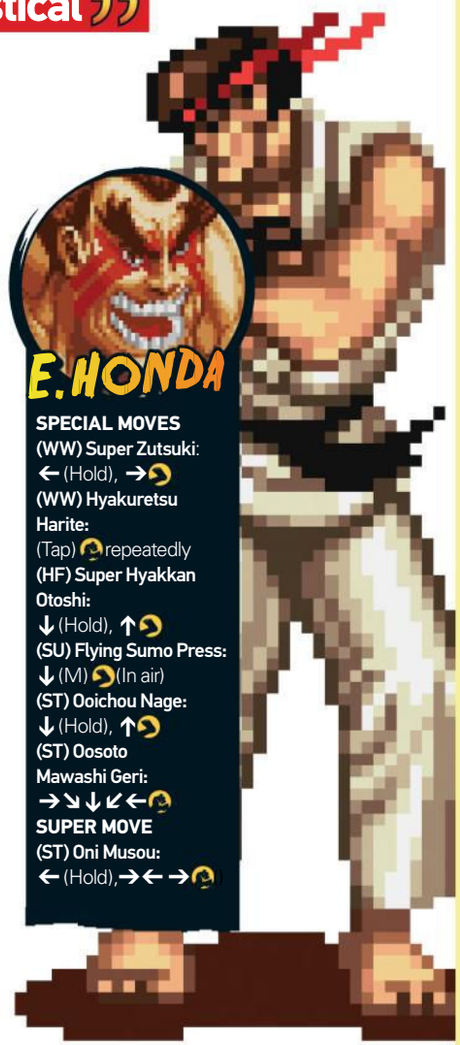
Much like its predecessor, *Street Fighter II* challenges players to win a series of one-on-one fights in a bid to win a fighting tournament. It retains some of the gameplay characteristics of the original game, including a control scheme with three strength options for punching and kicking, as well as the inclusion of special moves accessed with combinations of movements and button presses. In the single-player mode, you'll face off against the characters you didn't pick before taking on the game's four bosses – Balrog, Vega, Sagat and M. Bison. To break up the game a little, you're challenged to a bonus game every few rounds in which you destroy objects like a car, barrels and oil drums. Once M. Bison is defeated, you'll see a unique ending sequence for your character.

Unlike the original game, *Street Fighter II* gives you the choice of eight characters with distinct fighting styles, and they were an eye-catching bunch. Whether you were looking at Guile's bizarre haircut, Dhalsim's rubber limbs or the lightning hands of E. Honda, you were definitely looking at them – and each boasted a unique background themed around their nationality as well as a memorable theme tune. Yoshinori Ono, the executive producer of *Street Fighter V* and a veteran of the series, attributes much of the game's success to cast of characters. "The characters in the *Street Fighter* series are fantastical and couldn't really exist in the real world, but they all have their charms and amusing moves, expressions and storylines," he says.

Given that, it's no surprise that his favourite cast member is Blanka, the green-skinned wild man with an animalistic fighting style. "I mean, you bash the buttons and he releases electricity from his body! You wouldn't see that in an ordinary game or in a movie. Even the animations for his basic punch and kick moves are just really funny to me. Finding those humorous aspects within the potentially quite serious setting of playing an eSports ▶

» "How could you not love that face?" laughs Ono. It's hard not to, that's for sure.

» Each character's special moves were unique, and allowed players to respond to a variety of threats.



E.HONDA

SPECIAL MOVES
(WW) Super Zutsuki: ←(Hold), →
(WW) Hyakuretsu Harite: (Tap) repeatedly
(HF) Super Hyakkan Otoshi: ↓(Hold), ↑
(SU) Flying Sumo Press: ↓(M) (In air)
(ST) Ooichou Nage: ↓(Hold), ↑
(ST) Oosoto Mawashi Geri: →↘↓↙←
SUPER MOVE
(ST) Oni Musou: ←(Hold),→←→

▶ match of *Street Fighter* is, I think, one of the reasons the fans have continued to love the series as long as they have, and it's also one of the reasons why I love it."

BLANKA

SPECIAL MOVES
(WW) Electric Thunder: (Tap)
(WW) Rolling Attack: ←(Hold),→
(HF) Vertical Rolling: ↓(Hold),↑
(SU) Backstep Rolling: ←(Hold),→
(ST) Surprise Forward: →(All)
(ST) Surprise Back: ←(All)
SUPER MOVE
(ST) Ground Shave Rolling: ←(Hold),→←→(Hold)

» With Ryu vs Ryu mirror matches possible in *ChampionEdition*, Ken became his own character.

Peter Rosas rose to prominence on the competitive *Street Fighter* scene under the name Combofiend before joining Capcom himself, and shares a similar view. "Worldwide, anyone who's ever played videogames is aware of Ryu and his Hadoken and of Chun-Li and her lightning kicks. Regardless of what platform it's on, people relish using *Street Fighter II*'s iconic characters to fight one another while performing those characters' simplistic signature attacks." Indeed, everyone has a favourite. Michael first encountered the game at Sega, where a cabinet had been bought for research on its own fighting game, *Eternal Champions*. "For a period of time I was the office champ using Chun-Li as my character," he recalls. "Sadly, some of the testers learned my play and soon crushed me." Mark Starkey, owner of London arcade The Heart Of Gaming, leans towards Ken. "Ken was an aggressive Ryu with more combos, and his rotation-based execution meant the pace of the matches was always fast," he explains.

The additional characters certainly added longevity to the single-player game, as players could opt to try to win the tournament with each of them individually, but arguably the game's biggest impact was in bringing an element of direct competition back to arcades. "Previously all two-player games had been co-operative rather than competitive," Mark recalls. "*Street Fighter II* revolutionised this, pitting players against each other, all determined to not be the person forced to go and change up more money in front of their peers in order to be able to continue." Peter points to the widened character roster as a key reason that the game took off competitively. "Regardless of your style, there was one character amongst the eight that would fit. On top of that, the speed, fluidity of controls and ability to perform combos really made *Street Fighter II* stand out ahead of its time."

Ono agrees. "I can still remember clearly the feeling of not playing a game so much as being able to take on an opponent in such a visceral way," he says. "At the time there weren't that many videogames that allowed you to compete against someone like that, the same way as you would when playing sports or indoor games like pool and darts."

What elevated *Street Fighter II* from a trend to a phenomenon was its fighting system, which boasted depth. "I would say *Street Fighter II* cracked the next step of how an interactive fighting system worked," says Michael. "Back in the *Tongue Of The Fatman* days the fighting systems were very 'rock, paper, scissors'. Both people could launch either an attack, defence, or projectile in some cases. *Street Fighter II* was the dawn of combos. The ability to string a combo of moves was the game changer. It made the game play fluid and far more strategic."

The ability to perform combos – attacks which cancel the animation of previous attacks, leaving the opponent no recovery time – was an unintended side effect of an attempt to make special moves easier to perform. "It opened up an entirely new feeling of what was possible in a fighting game," says Peter. "Prior to the introduction of this glitch, which then became a mainstay, fighting games consisted of slow attacks where the entire action needed to be completed before the next action could be performed. This ultimately left fighting games feeling rather stiff."

> **"Worldwide, anyone who's ever played videogames is aware of Ryu and his Hadoken or Chun-Li and her lightning kicks"**
> Peter Rosas

Of course, the combo system wasn't the only glitch in *Street Fighter II*, and the game's director Akira Nishitani had been privately fixing them up for personal satisfaction. However, they'd soon be put to use. Demand from Capcom's American branch turned *Street Fighter II* from a static game into an experience which evolved over the years with updates, in response to market developments and the findings of competitive players. Capcom's approach was bold: while the concept of updating an cabinet was hardly new, the upgrade kit was often a overhaul or a completely new game. *Street Fighter II* received four upgrades over the course of three years, all of which left the core of the game intact.

The first updated version, titled *Street Fighter II': Champion Edition*, was released just over a year after the original version in March 1992. The multiplayer game was refreshed with a huge number of new match-ups, thanks

GUILE

SPECIAL MOVES
(WW) Sonic Boom: ←(Hold), →
(WW) Somersault Kick: ↓(Hold), ↑
(WW) Flying Buster Drop: ↓(M)(H)(In air)
(WW) Flying Mare: ↓(M)(H)(In air)
SUPER MOVE
(ST) Double Somersault Kick: ↙(Hold),↘↙↗

» *Turbo* brought new moves for most characters, like Chun-Li's projectile attack.

» Cammy is arguably the most popular of *Super Street Fighter II*'s new challengers.

to the new ability for both players to pick the same character, as well as the much more enticing ability to play as the four boss characters. Beyond that, the revision brought bug fixes, a set of move tweaks designed to rebalance the game and some minor graphical updates.

The ease of replacing chips on the *Champion Edition* board gave way to a slew of unofficial updates – notably *Rainbow Edition*, a fast-paced hack which broke the game balance with airborne special moves and bizarre projectile behaviour. At the end of 1992, *Street Fighter II' Turbo: Hyper Fighting* arrived as a playable official alternative. As well as giving seven of the original eight playable characters a new special move (with Guile losing out), the game's speed was noticeably increased. While it sounds like a fairly minor update compared to *Champion Edition*, it is fondly remembered: "I believe it to be the best all-rounder," says Mark. "The game was balanced, and improved on the limitations of its predecessor with extra speed, extra moves and damage levels with better balancing. It's still very popular at arcades in the East." ▶

TEAM PICKS

The Retro Gamer team looks back at their favourite Street Fighter characters

DARREN

Chararcter: Zangief

■ 'The Darran Jones Factor' has been circulating around the office for years. It refers to my ability to manically rotate the joystick to pull off insanely quick piledrivers. Therefore I play Zangief.

NICK

Chararcter: Ryu

■ Boring? Maybe, but Ryu perfectly fits my image of what a badass martial artist looks like, complete with white gi and a black belt – as a young karate student, he was what I wanted to be.

JON

Chararcter: Blanka

■ I like to play a defensive game and then slide in with a rolling attack or floor slide. For me, Blanka provides the best chance at keeping my distance but then also ability to get in close if needs be.

DREW

Chararcter: Chun-Li

■ It was not the Hadoken, but Chun's lightning legs (Hyakuretsu Kyaku) that wowed me in *Street Fighter II*. She's such a good all-rounder, and I still play Chun-Li to this day on *Street Fighter V*.

DHALSIM

SPECIAL MOVES
(WW) Yoga Fire: ↓↘→
(WW) Yoga Flame: ←↙↓↘→
(WW) Drill Zutsuki: ↓(H) (In air)
(WW) Drill Kick: ↓(H) (In air)
(HF) Yoga Teleport (Forward): →↓↘(All) or
(HF) Yoga Teleport (Backward): ←↓↙(All) or
(ST) Yoga Blast: ←↙↓↘→
SUPER MOVE
(ST) Yoga Inferno: →↘↓↙←
→↘↓↙←

ZANGIEF

SPECIAL MOVES
(WW) Double Lariat: (All)
(WW) Screw Piledriver: (360)
(HF) Quick Lariat: (All)
(SU) Flying Powerbomb: (360)
(SU) Atomic Suplex: (360) (Close)
(ST) Banishing Flat: →↘↓
SUPER MOVE
(ST) Final Atomic Buster: 2x(360)

SAGAT

SPECIAL MOVES
(CE) Tiger Shot: ↓↘→
(CE) Ground Tiger Shot: ↓↘→
(CE) Tiger Uppercut: →↓↘
(CE) Tiger Knee Crush: ↓↘→↗
SUPER MOVE
(ST) Tiger Genocide: ↓↘→↘→

Did You Know

■ There's a hidden catch-up mechanic in *Street Fighter II* – if your opponent has won more rounds than you, your throws will deal some extra damage to help you out a bit.

■ In order to clue players in to the existence of special moves, every button press in the original arcade version of *Street Fighter II* carries a 1-in-512 chance of triggering a special move.

■ The team's original intention was that all projectiles could be avoided by crouching, but those plans were scrapped due to how good the now-familiar Hadoken animation looked.

■ *Divekick*, *Shovel Knight* and *Kaiju Combat* all feature The Baz, a character based on an unused piece of *Street Fighter II* concept art depicting a bullfighter wearing a T-shirt that reads 'Zubaz'.

■ Dee Jay's trousers were originally going to bear the word 'Mantis', but the word was changed to read 'Maximum' because the word still read properly when the sprite was flipped.

Arguably the most major update to *Street Fighter II* came with the game's move to the CPS2 arcade board. *Super Street Fighter II: The New Challengers* was a big overhaul, featuring four brand new characters with their own backgrounds and theme tunes. Fei Long was a clear homage to Bruce Lee and Dee Jay, the first character to be designed by Capcom USA, was fashioned after the martial artist and Tae Bo creator Billy Blanks. T. Hawk (short for Thunder Hawk) was a Mexican powerhouse, while the UK's Cammy was an amnesiac assassin with a mysterious connection to M. Bison.

"I think the new characters added some new ways to play," says Peter. "A good example is T.Hawk. With this introduction, a new grappler entered the fray, yet instead of being ground-based, he was more mobile and able close the distance on the opponent's way faster than Zangief could. Having a mobile grappler was something unseen in *Street Fighter*, and was truly daring."

Balrog

SPECIAL MOVES
(CE) Dash Upper
←(Hold),→
CE) Dash Straight:
←(Hold),→
(CE) Turn Punch:
(All)/(All)
(Hold), release
(SU) Buffalo Headbutt:
↓(Hold), ↑
(ST) Dash Ground Upper:
←(Hold) ↘
(ST) Dash Ground Straight:
←(Hold)↘
SUPER MOVE
(ST) Crazy Buffalo:
←(Hold),→←→

As *Super Street Fighter II* was running on more powerful hardware than the first three versions, those weren't the only changes. "On-screen combo counters, remixed music, as well as character detailing. We ate up what was thrown at us," Mark recalls. But, the game was a step back in one regard – the additional speed found in *Street Fighter II Turbo* was nowhere to be seen.

» Super combos were marked with a blue shadow trail, although ironically Sagat was stronger without one.

The last of the contemporary updates was *Super Street Fighter II Turbo*, which brought back the higher speeds of *Street Fighter II Turbo*. However, its major innovation was the addition of Super moves – powerful multi-hit combos that could only be performed once the gauge at the bottom of the screen had been completely filled. The game also added throw escapes, which allowed players to reduce damage when being thrown, but removed the Tournament Battle mode and the bonus stages.

Vega

SPECIAL MOVES
(CE) Rolling Crystal Flash:
←(Hold),→
(CE) Flying Barcelona Attack:
↓(Hold),↑ then
(CE) Izuna Drop:
↓(Hold),↑ then
← or →
(SU) Sky High Claw:
↓(Hold), ↑
(ST) Scarlet Terror:
↙(Hold), →
SUPER MOVE
(ST) Rolling Izuna Drop:
↙(Hold),↘↙↗→ then←/ →

Looking back on the updates, Peter is positive about their impact: "Although I liked some more than others, I felt each were a necessity as Capcom further refined not only how *Street Fighter II* looked and felt, but how fighting games could look and feel." He wasn't alone in that sentiment, as *Street Fighter II*'s updates were also strong critical and commercial successes. "That said," Peter continues, "I remember thinking, 'Just give me *Street Fighter III* already,' when *Super Street Fighter II* was released." He speaks for a vocal section of the community in this regard, as there was a suspicion that Capcom had found a cash cow and was milking it. The update idea had worked brilliantly for the arcade market, where an operator could justify expenditure because it would increase the cabinet's longevity. Only the hardcore would fork out the cost of a full-price game for such revisions in the home market, and the updates released to diminishing returns.

In 2004, a final arcade version titled *Hyper Street Fighter II* was released. It featured the ability to choose not only your character, but also the version characteristics applied to them – meaning it was possible to pit *Champion Edition* Ryu against *Hyper Fighting* Sagat, for example. The last new revision was *Super Street Fighter II Turbo HD Remix*, which added new HD visuals and a remixed soundtrack, as well as a rebalanced mode with simpler control inputs. "It was surprising as the sentiment within the competitive scene was that although *SSFII Turbo* was rather imbalanced (Old Sagat was quite strong) they kind of accepted it and were still finding ways to fight the character well up to *SSFII: HDR*'s release," says Peter. "That said, seeing as how *HDR* had a brand-new look, it would've been weird if the game did not also have a different re-balance."

Street Fighter II's commercial impact is hard to overstate. Both Capcom and operators made major money from the game, as a competitive scene gave rise to tournaments and a competitive scene, the legacy of which can be seen in today's eSports scene and tournaments like the Evo Championship Series.

Of course, success breeds imitators. "Developers saw the impact *Street Fighter II* was having, and it wasn't long before the competition got tough," recalls Mark, "especially with franchises such as *Mortal Kombat*, *The King Of Fighters* and *Tekken* all out by 1994, and all looking to claim the competitive fighting game genre in the arcades." By that point every major arcade manufacturer had jumped on the fighting bandwagon and Capcom felt that some imitators were getting a bit close for comfort. In particular, Capcom took Data East to court over *Fighter's History*, alleging that it had copied fighting styles, appearances and control schemes from *Street Fighter II*. However, the court concluded that many of the similarities between the two games were not protected under copyright law, and that *Fighter's History* had not sufficiently infringed upon those that were.

However, it was certainly possible to carve out a place in the fighting market.

» With teleportation, air fireballs and insane power, Akuma was a devilish boss.

Stat Fighter

The tale of the tape on Capcom's prize fighter

7
Games in the *Street Fighter II* series

65
Character variations available in *Hyper Street Fighter II*

£1000
The amount of earnings a *Street Fighter II* (UK) cabinet could bring in

22.4 billion Yen
The revenue from *Street Fighter II: Champion Edition* sales in Japan alone

24
Number of platforms that received an official version of a *Street Fighter II* series game

200,000
Estimated number of *Street Fighter II* cabinets operated in Mexico

17
Unique characters in *Street Fighter II* series

0
Number of *Street Fighter II* cabinets Capcom sold to Mexican operators

22 Years
How long *Street Fighter II* held the record for best-selling Capcom game

8 Frames
Least forgiving input time limit for a Shoryuken in *Super Street Fighter II Turbo*

15 Frames
Most forgiving input time limit for a Shoryuken in *Super Street Fighter II Turbo*

DEE JAY

SPECIAL MOVES
(SU) Air Slasher: ←(Hold),→
(SU) Double Rolling Sobat: ←(Hold),→
(SU) Machine Gun Upper: ↓(Hold),↑, then (tap)
(ST) Jackknife Maximum: ↓(Hold),↑
SUPER MOVE
(ST) Sobat Carnival: ←(Hold),→←→

> **"The game was balanced, and improved on the limitations of its predecessor"**
> Mark Starkey

The important thing, as Michael notes, was to offer something that *Street Fighter II* didn't. "I think *Eternal Champions* always started with a deep story as the focus. Prior to this, no fighting game had focused on that aspect," he explains. "Given that *Eternal Champions* wasn't an arcade port I also focused to make sure the single-player was rewarded. Training modes and all the various storyline outcomes were designed to reward those players as much as the head to head modes." This paid off for Michael and his team, as the game achieved strong sales despite a crowded Mega Drive fighting market. Indeed, every competitor offered a unique hook, be it the realistic digitised sprites and copious gore of *Mortal Kombat*, the dynamic sprite scaling of SNK's games or the 3D visuals of games like *Virtua Fighter*. However, most games adopted aspects of *Street Fighter II* in return, with the combo system being the most notable.

In the home, *Street Fighter II* was big business, with almost every platform receiving at least one of the game's versions. However, special mention has to be made of *Street Fighter II*'s impact as a third-party killer app for Nintendo – the SNES version was the first home conversion on the market when it arrived in the summer of 1992, and fans of the arcade machine flocked to the console as a result. Nintendo was particularly keen to trumpet the fact that it had the only conversion of the game, memorably placing a full page advert stating "Sega owners… dream on." in the debut issue of *Mean Machines Sega*.

Although other versions did arrive later and some of them were very good, the game always had the strongest association with Nintendo's hardware. In fact, of the 36 million *Street Fighter* games that have been sold to date, roughly a third of those are different versions of *Street Fighter II* on the Super Nintendo – six million of the original, four million of *Street Fighter II Turbo* and two million of *Super Street Fighter II*. For comparison, *Street Fighter II: Special Champion Edition* on the Mega Drive sold 1.65 million copies and *Super Street Fighter II* failed to crack a million.

M. BISON

SPECIAL MOVES
(CE) Psycho Crusher: ←(Hold),→
(CE) Double Knee Press: ←(Hold),→
(CE) Head Press: ↓(Hold),↑
(CE) Somersault Skull Diver: (After Head Press)
(SU) Devil Reverse: ↓(Hold),↑
SUPER MOVE
(ST) Knee Press Nightmare: ←(Hold),→←→

While updates had provided diminishing returns over *Street Fighter II*'s lifetime, they had kept the game relevant for years and encouraged a thriving player base. Capcom would continue using updates in this way as a result, putting out a variety of revised versions of *Street Fighter III* and *Street Fighter IV*. Other developers also adopted the use of interim updates in their own fighting games, with some proving just as prolific as Capcom – for example, Arc System Works produced five revisions of *Guilty Gear XX*. However, the end of this business model may be in sight as Capcom abandoned the practice for *Street Fighter V*, which will rely on rolling DLC instead.

For Capcom, the success of *Street Fighter II* was transformative – not only did the company create further *Street Fighter* sequels, it began to ▶

Conversion Capers

We take a look at all the ports of Capcom's arcade smash hit

gear its arcade output heavily towards fighting games. This peaked in 1998, when seven of Capcom's nine arcade releases were fighting games – and four of those featured Ryu, in a prequel (*Street Fighter Alpha 3*), a sequel (*Street Fighter III 2nd Impact*), a spin-off (*Street Fighter EX2*) and a crossover (*Marvel Vs Capcom*). This persisted until the decline of fighting games around the turn of the century, but the company also takes the credit for the genre's revival with *Street Fighter IV*.

Street Fighter II reshaped a genre, and its influence continues to be felt today . "With many things popular today, there is heritage. *Star Wars, Final Fantasy, James Bond, Shenmue*, take your pick," says Mark. "There will always be people who will be curious about the roots of something they fall in love with, and with *Street Fighter V* on the horizon, *Street Fighter* is as popular as ever."

But while *Street Fighter V* drives renewed interest in the series, what truly marks *Street Fighter II* out as a stunning sequel is that the staff of the new games often refer back to it. "One of the things that made *Street Fighter II* stand out was that anyone could walk up and hit buttons and leave satisfied," says Peter. "When designing *SFV*, that was one of our core design pillars."

"I suppose we've been inspired by that game all along in how we develop the series," says Ono. "Most game series have new sequels which build upon the design of the previous titles, but *Street Fighter II* really started over from what was created in the original *Street Fighter*. When it came time to move to *Street Fighter III* and Street *Fighter IV*, we really started from scratch each time," the producer elaborates. "It was *Street Fighter II* that started this pattern in motion and now, as I've said many times, *Street Fighter V* is another reset of the game and brings a new roster and new design. So you could say that what *Street Fighter II* did over 20 years ago – wait, it's almost 30 years now! – has continued to influence us."

We get the feeling it'll continue to do so for many more years to come, too.

Cammy

SPECIAL MOVES
(SU) Spiral Arrow: ↓↘→
(SU) Cannon Spike: →↓↘
(SU) Axle Spin Knuckle: ←↙↓↘→
(ST) Hooligan Combination: ↙↓↘→↗ then
(ST) Fatal Leg Twister: ← (Hold),→ (after Hooligan Combination, near head)
(ST) Cross Scissor Pressure: ← (Hold),→ (after Hooligan Combination, near body)
SUPER MOVE
(ST) Spin Drive Smasher: ↓↘→↓↘

MEGA DRIVE

■ As with the PC Engine version, this is a port of *Champion Edition*, however, it also adds *Turbo* content. The three-button pad is usable (you use Start to switch between punches and kicks) but special moves are harder to pull off compared to the superior SNES controller. Plug a six-button pad in, though, and it's virtually on par with *Super Street Fighter II Turbo* on SNES.

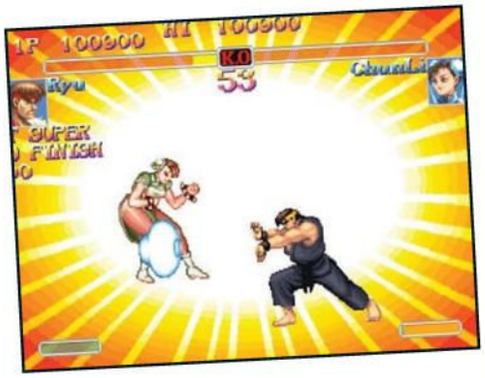
SUPER NINTENDO

■ Its been superseded by later SNES *Street Fighter* ports, but the original conversion still holds up surprisingly well. It's very close to the arcade game in style (although there is a lot of missing content) and the controls are tight and responsive without the need for extra pads. Little wonder it was deemed the definitive home version of the game upon release.

T. Hawk

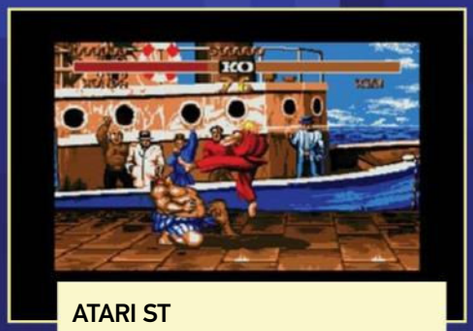
SPECIAL MOVES
(SU) Condor Dive: (In air) (All)
(SU) Tomahawk Buster: →↓↘
(SU) Mexican Typhoon: (360)
SUPER MOVE
(ST) Double Typhoon: 2x(360)

» This beautiful sunburst is your reward for knocking out an opponent with a Super Combo. Very nice!



ZX SPECTRUM

■ The Spectrum version looks great, but it's saddled by an astonishingly bad multi-load system. Like the other 8-bit ports it does cater for two-button sticks, but the base version — fire and forward for punch and fire and back for kick — is very hard to use.



ATARI ST

■ The Atari ST version suffers from all the same issues as the Amiga but manages to be even worse. The animation is particularly bad and the game is slower than its Amiga counterpart. It's slightly easier to pull off special moves, but it's still a poor port.

COMMODORE 64

■ The C64 version is quick, but that's pretty much all it has going for it. It's a buggy version of the game, with frequent odd pauses during play. Worse still, your characters occasionally get stuck on the backgrounds.

FEI LONG

SPECIAL MOVES
(SU) Rekka Ken: ↓↘→ (perform up to 3 times)
(SU) Shien Kyaku: ←↓↙
(ST) Rekku Kyaku: ↙↓↘→↗
(ST) Shuu Kubi Raku: ←→ (M/H) (in air)
SUPER MOVE
(ST) Rekka Shinken: ↓↘→↓↘→

SHARP X68000

■ This is another *Champion Edition* port and is virtually arcade perfect, with only slightly different music. Control-wise it had the same issues are other home computers, but that's solved with a joystick adaptor. The only thing that ruins it is the constant swapping between four disks on certain systems.

PC ENGINE

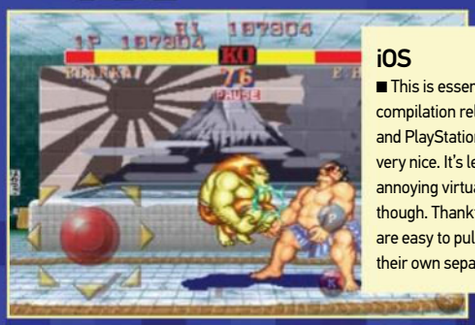
■ When you consider the machine, this is a truly astonishing port and in some ways more impressive than the SNES version. It's rubbish to play with a standard pad, but luckily there's the option for six-button support.

DOS

■ The DOS version looks good, and it miles better looking that its Amiga and Atari ST counterparts. Even the animation is decent, although the music is nothing to write home about. It's still ruined by a clunky control system.

AMIGA

■ Despite some odd colouring the Amiga version looks authentic. But that falls apart once you see it moving, due to jerky animation and poor scrolling. Musically it's terrible, and it's hampered by the same poor control system found on the 8-bit conversions.



iOS

■ This is essentially the compilation released on Saturn and PlayStation, meaning it looks very nice. It's let down by the annoying virtual buttons and stick, though. Thankfully special moves are easy to pull off as they have their own separate buttons.

GAME BOY

■ This is a weird hodgepodge edition of games up to *Super Street Fighter II Turbo*. It's very well detailed for a Game Boy game with great looking sprites. It's missing Dhalsim, Vega and E. Honda and only has two buttons. Cleverly though, it changes the strength of kicks and punches based on how long you press the buttons for.

XBOX, PSP, PS2

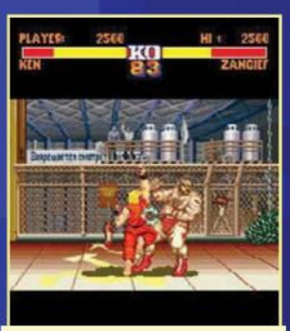
■ These are emulated versions of the arcade versions. PS2 and Xbox owners want *Capcom Classics Collection Volume 1* with *Street Fighter II*, *Champion Edition* and *Street Fighter II Turbo: Hyper Fighting*. PSP owners need *Capcom Classics Collection Reloaded*.

AKUMA

SPECIAL MOVES
(ST) Gou Hadoken: ↓↘→
(ST) Zankuu Hadoken: ↓↘→ (in air)
(ST) Shakunetsu Hadoken: ←↙↓↘→
(ST) Gou Shoryuken: →↓↘
(ST) Tatsumaki Zankukyaku: ↓↙←
(ST) Kuchu Tatsumaki Zankukyaku: ↓↙← (in air)
(ST) Ashura Senku (Forward): →↓↘ (all) or
(ST) Ashura Senku (Backward): ←↓↙ (all) or

MASTER SYSTEM

■ Based on *Champion Edition*, Master System *Street Fighter II* is clearly cut-down. Dhalsim, Zangief, E. Honda and Vega are missing. It's graphically impressive and has authentic tunes, but is let down by a distinct lack of buttons and poor controls.



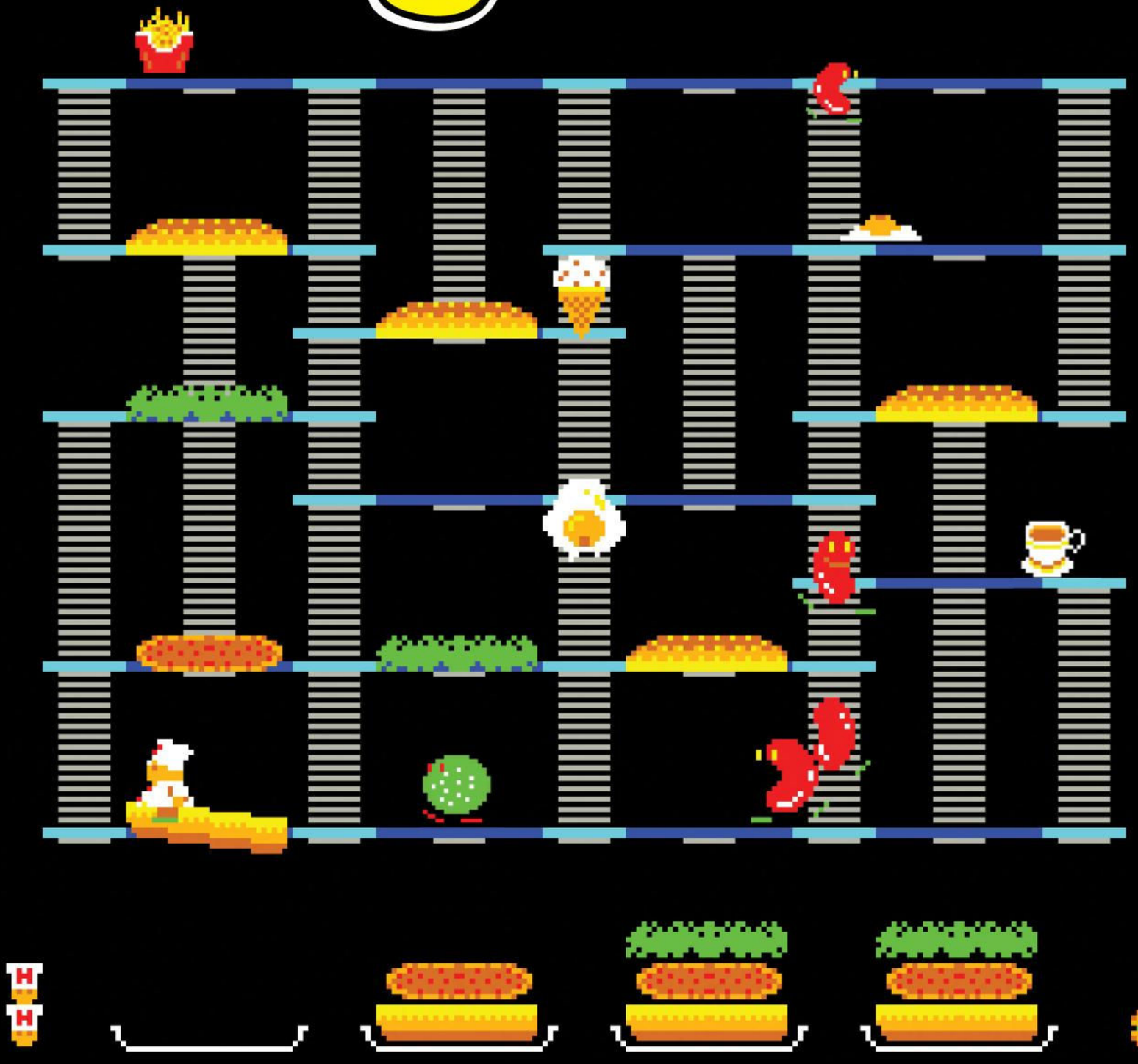
MOBILE

■ While the graphics are accurate, it's stiff and sluggish to play, and playing on a keypad makes it incredibly difficult to pull off special moves. An impressive effort, but a poor game.

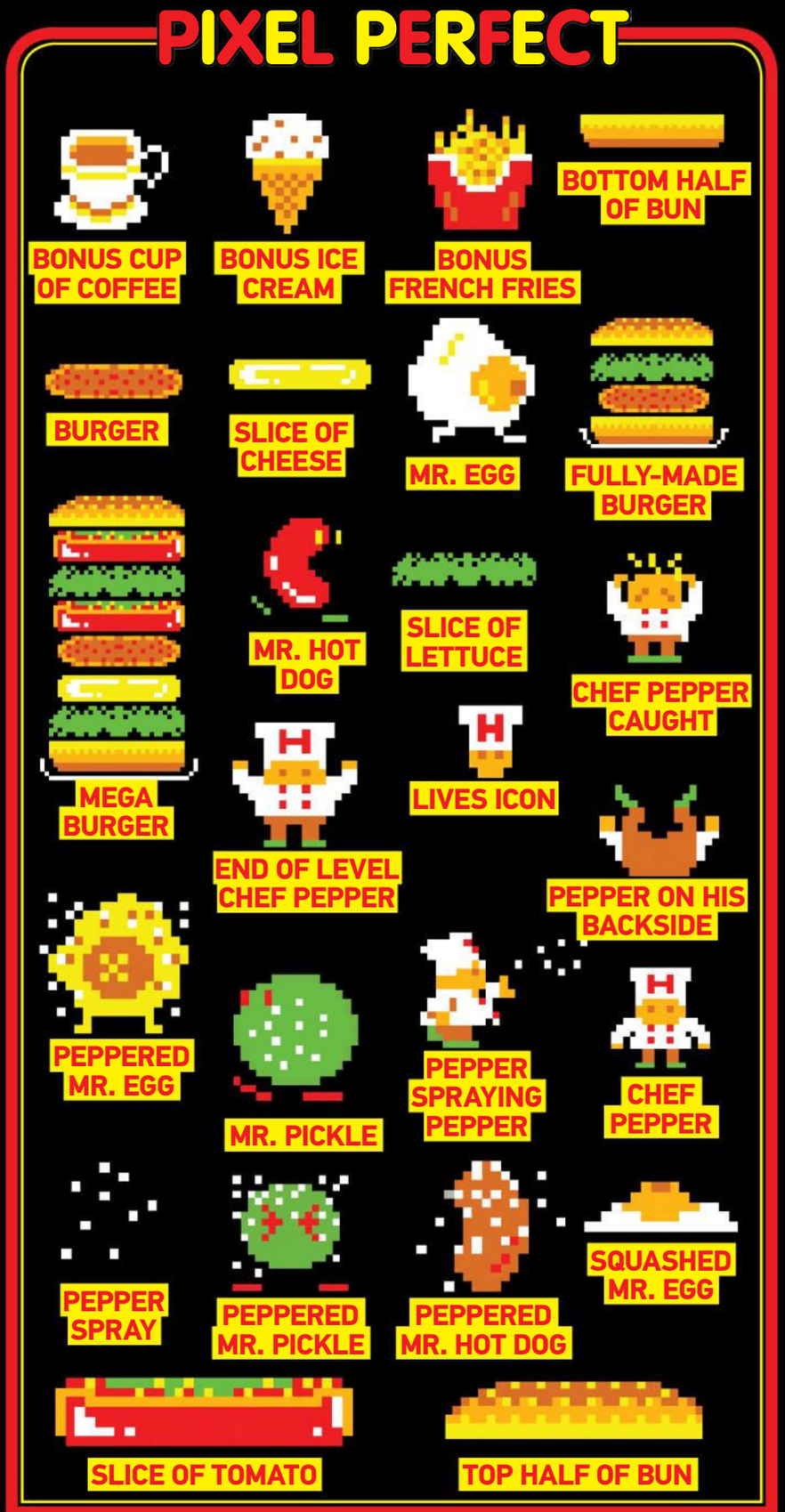
PLAYSTATION/SATURN

■ As you'd expect, the versions released on *Capcom's Street Fighter II* and *Capcom Generations* collections are near perfect, with the Saturn ports winning bonus points due to having the better pad.

BurgerTime



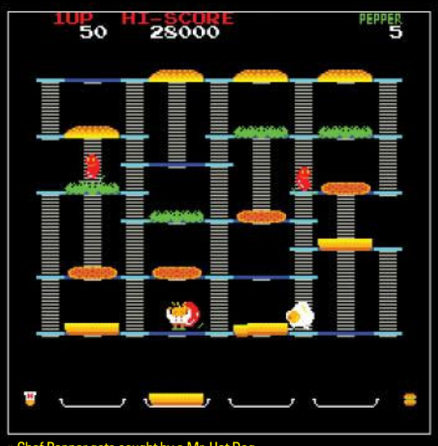
PIXEL PERFECT



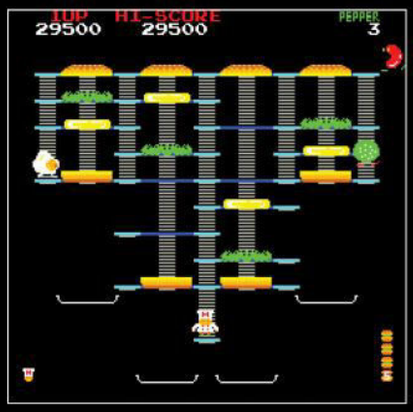
A combination of Donkey Kong and the fast food explosion of the Eighties, BurgerTime hit arcades in 1982 and gave hungry gamers the chance to try their hand at high-pressure short-order burger-flipping. Let's get cookin'!

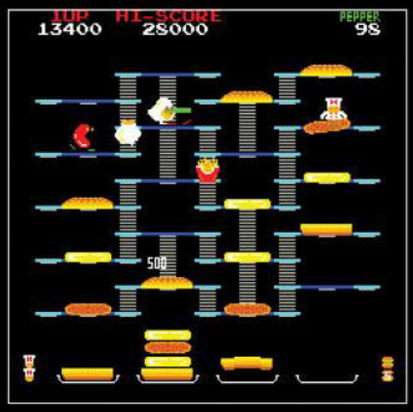
Anyone who stepped into an Eighties arcade will freely tell you one thing about the games that resided there: they were hard as nails. These were machines designed to remorselessly extract every spare piece of change from a teenager's pocket, and welcome them into a world of bright colours and frustrating, 'just-one-more-go'-style gameplay. The toughest games would have you in tears, distraught for not getting past that boss at the umpteenth attempt. They'd have you on your knees as your avatar bit the dust time and time again, smote repeatedly by a grossly unfair random bullet or missile. Some games frustrated you. Some games drove you mad. And then there was *BurgerTime*.

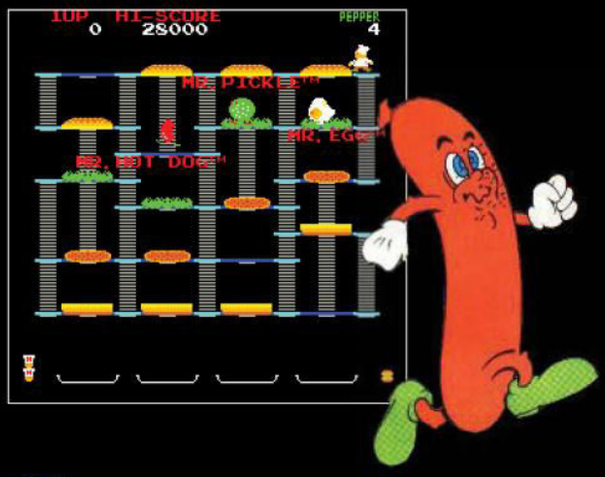
Strangely, *BurgerTime* (originally titled *Hamburger*) was not created in the pits of Hell, but in the offices of arcade giant Data East. The game used Data East's proprietary and interchangeable Deco Cassette system and came on a simple audio cassette, which was loaded into a base cabinet by the machine's owner. The system was notorious on two counts: the unreliability of the audio cassettes (and the fact they had to be 'loaded' ▶



» Chef Pepper gets caught by a Mr. Hot Dog.







DEVELOPER Q&A

We talk to Ray Kaestner, programmer of the superb Intellivision version of BurgerTime

Were you familiar with the arcade game?
Not initially, since it was developed in Japan and at the time it didn't have much of a following in the US. When I got the assignment I had a crash course in it. We had no access to the original code, not that it would have done us much good, since the architecture would have been so different to the Intellivision.

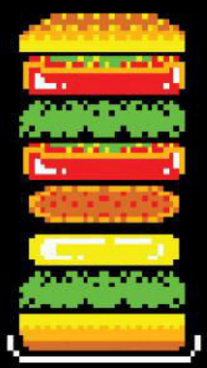
How did you prepare for the conversion job?
By playing the game a lot and getting familiar with the different screens and motions of the enemies. Some of the other Intellivision coders played it a lot and got proficient at it so I got a good chance to observe the game without worrying about surviving.

Any big issues during development?
The screen resolution for the Intellivision is much lower than that of the arcade game, so making mazes that captured the mechanics of the original made the job interesting. We had to make compromises, like only on the first screen can you see the full burgers at the bottom of the screen, and even then we didn't show some ingredients in order to save screen real estate. Other than that, just things like the Intellivision being limited to eight moving objects, so the animation of the dropping burger pieces had to be done in the background. I was concerned it wouldn't looked smooth enough, but it turned out okay. Plus we were under time pressure, I started work on the game in September, and was scheduled to get married in December! Fortunately I got off to a good start and finished the main programming a month before my wedding day, which left plenty of time for tuning and testing.

How well do you think you did?
I was very pleased. The extra time for tuning made a huge difference and Karen Nugent did a great job on the graphics and character animations. Bill Goodrich also did well translating the music and sounds. Mattel was pleased, too – it invested heavily in the game with advertising. And it was successful, which was very satisfying.

What was it like working for Mattel and what role did *BurgerTime* play in your career there?
Mattel was my first job out of college and I learned much there about software architecture and development. The constraints we were working with then taught us to be very efficient in how we wrote software and also gave us focus on simple but fun gameplay. And working on *BurgerTime* gave me opportunities to work on more fun projects at Mattel such as the *Masters Of The Universe* game and the Intellivision III Master Component.

"Despite its difficulty, BurgerTime proved to be very popular in arcades"



» Data East kindly reveals the best ways to score points during play.

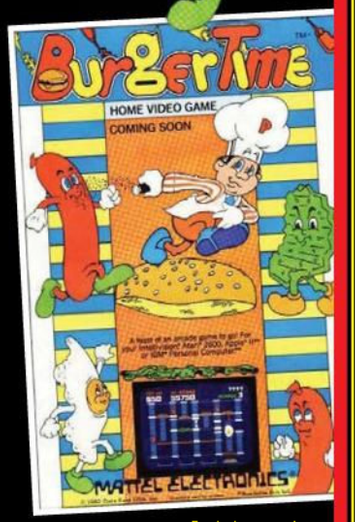
up every morning) and, most notably, the difficulty level of the games that used the system. Later versions of the game came on its own dedicated arcade board.

BurgerTime throws the player into the heated cauldron of a fast food restaurant kitchen. Your name is Chef Peter Pepper, and the object is to create copious amounts of juicy burgers for a mass of hungry customers. This is no ordinary kitchen, however. Many of Chef Pepper's ingredients have come to life and are stalking him as he goes about his work. One touch from a Mr. Hot Dog, Mr. Egg or Mr. Pickle will put the hard-working cook on his arse and one of his three lives is lost. The parts of the burgers themselves are spread around a selection of nefariously-designed mazes. Chef Pepper must negotiate his way around, avoiding the deadly enemies and 'walking over' the ingredients. These will then fall to the level underneath, knocking down any items laying directly below. When all the ingredients are formed at the bottom of the screen

» There are useful tips in the attract mode. Pay attention to them.

and the burgers are complete, Chef Pepper allows himself a little celebratory dance before it's off to the next level and more baying, hungry customers.

In essence, *BurgerTime* is ridiculously simple. There are no power-ups and Chef Pepper cannot jump. In fact, all he has to defend himself is a pepper shaker, a quick dash of which temporarily stuns the pesky hostile foodstuffs. Enemies can also be taken out (again temporarily) by dropping ingredients on them or walking over an ingredient with an enemy on it. The latter yields an extra bonus and is the best way to rack up a decent score. Once all the burger patties, tomato and lettuce have dropped to the bottom of the screen, the burgers are ready and it's off to the next level. Each screen looks deceptively easy, with some requiring many burgers to be made, others containing multiple dead ends and choke points where it's easy for a careless Chef Pepper to get trapped by two enemies. Bonus items, either a cup of coffee, fries or ice cream cone will appear periodically. Snare one of these and Chef gets an extra pepper. But there's little respite as any vanquished enemies soon return to the fray.



» For the home versions, Mattel employed an extensive advertising campaign.

» An advert for the NES version of the game.

Like many of its arcade peers, *BurgerTime* has no actual ending; instead the game just loops around the same set of screens. However, while the number of enemies remains fairly constant, their speed does not. From around level 12 onwards, Mr. Egg, Hot Dog and Pickle gain fractional extra pace until by level 22 they are beginning to outpace the rotund cook. Any player who can negotiate level 25 onwards with the food running amok at great rapidity, deserves the greatest of respect.

Yet despite its difficulty, *BurgerTime* proved to be very popular in arcades. The US and European versions were licensed by Bally Midway and identical to Data East's save a few changes to the game cabinet, and both upright and cocktail

BEAT BURGERTIME

TAKE OUT THE TOP BUNS

■ Unless you happen to be passing them, it's a good idea to ignore the burger fillings that are scattered around and head for the top buns. Taking these out knocks down all the ingredients below them and saves a hefty amount of time.

TREASURE THAT PEPPER

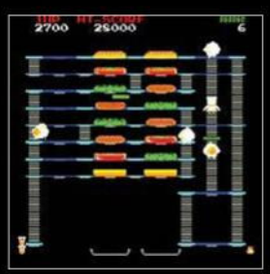
■ Unlike in most restaurant kitchens, pepper is in very short supply. Only use it when you have to, such as when you are stuck between two enemies or in a tight corner. Make a beeline for the bonus items as they give you an extra pepper.

WATCH OUT FOR DEAD ENDS

■ Many of the levels contain burgers to the extreme left and right, and often these have no ladders on their far platforms. When knocking down these items, make sure you are well clear of enemies that could potentially trap you.

PRACTICE THE LADDER/PLATFORM TRANSITION

■ Chef Pepper isn't the nimblest of arcade heroes and he transfers from ladders to platforms rather clumsily. Practicing leaving the ladders at just the right moment can save vital seconds and space.



WATCH FOR THE CHOKE POINTS

■ While the earlier levels offer plenty of escape routes, many of the latter ones contain single ladders in and out of areas that can often see Chef Pepper trapped. And don't forget there are extra points for downing ingredients with an enemy on them.

PATIENCE, DON'T PANIC AND HAVE LOTS OF 10P PIECES

■ OK, so the last point is only relevant if its 1983 – but the others still apply. A direct route may not be possible so bide your time, wander the maze and stay calm. These burgers won't make themselves!

CONVERSION CAPERS

APPLE II

■ The buns may look like they've been doused in icing sugar, yet this is a credible port of *BurgerTime*. Pepper moves around the screen smoothly and the Mr. Hot Dogs have gained a creepy set of white eyes. There's also no sign of that damn tune – which is always a bonus.

ATARI 2600

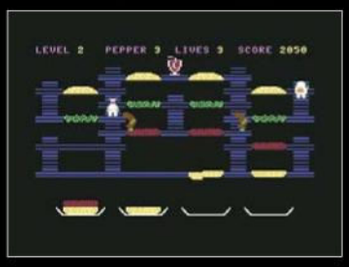
■ Produced by Mattel's M Network, this version is hardly the most advanced graphically, although there's a fairly decent stab at recreating Mr. Hot Dog and the main character. Pepper himself seems to struggle a bit up the ladders. Maybe he needs to lay off the junk food...

COLECOVISION

■ An incredibly faithful version of the arcade original. Everything is all present and correct from the food-based enemies to level design and (ugh) that incessant melody. Without doubt one of the best home console versions and some delicious-looking burgers!

NES

■ Another solid port that doesn't add anything new to the template (despite being released several years after the original) but does its job very efficiently. All the sound effects, graphics and gameplay are pretty much as per the original arcade game.

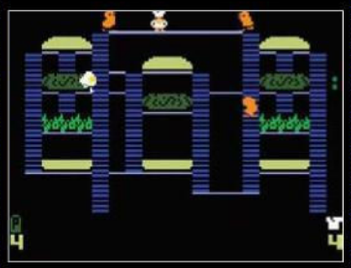


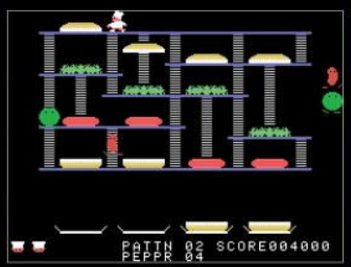
COMMODORE 64

■ Well, this *is* cheeky. Arcade clones were not rare, of course, but at least the majority of publishers normally changed the name. Some sources reckon this is genuine, but we reckon not, given it was published in 1984 by UK's Interceptor Micros and fails to namecheck Data East anywhere. It isn't much cop.

INTELLIVISION

■ Not only an excellent conversion of *BurgerTime* by Ray Kaestner, but also one of the bestselling games on the Mattel console. Despite a (necessary) squashed screen it retains most of the original's charm and playability. Pepper transfers between ladders with less precision, making it a slice easier when the action heats up.



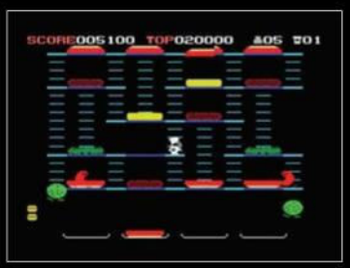


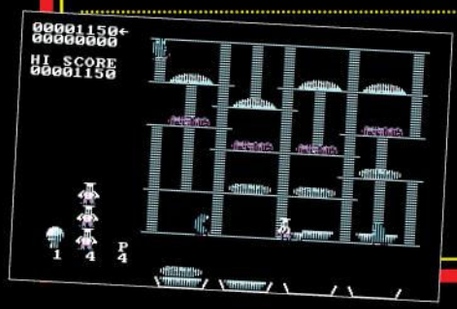
T1-99/4A

■ The Texas Instruments computer has another credible conversion of *BurgerTime* despite a number of elements from the original being absent. The graphics are smart, the sound accurate and only a few minor gameplay complaints, such as being unable to throw pepper while moving, mark against it.

MSX

■ *BurgerTime*'s simplistic aesthetics and gameplay certainly helped when it came to home conversions and this MSX port is another decent effort. Chef Pepper himself has had something of a makeover, but otherwise the sprites are excellent and the ingredients even offer a neat little bounce as they fall down.



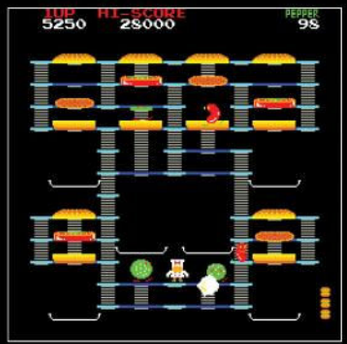


PC-DOS

■ Opinion again seems divided on whether this is an official conversion of *BurgerTime* or not, but given it's by Mattel and mentions Data East on the title page, we reckon so. It has horrible CGA graphics, but is actually a very competent and enjoyable version, it's even slightly easier than the arcade original.

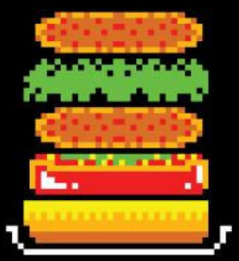
MATTEL AQUARIUS

■ This is a colourful conversion with all the burger elements adequately represented. The game does play jerkily, however, and the Mr. Hot Dogs and Mr. Pickles have been transformed into rather odd-looking stick men. The sound effects are suitably crunchy although the annoying tune is also present.



"With imitation being the sincerest form of flattery, many clones were released on home computers"

» Just look at the size of that thing!



versions were released. Home ports were inevitable, and the game saw action on a range of systems including the Mattel Intellivision, Atari 2600 and ColecoVision. And with imitation being the sincerest form of flattery, many clones such as Ocean's *Mr. Wimpy* and Blaby's *Barmy Burgers* were released on home computers. The official validity of Interceptor Micros' *Burger Time* remains in doubt, but given the lack of any other authorised conversions from the Hampshire software house, it seems an unlikely genuine licence.

Arcade spin-offs and sequels also appeared. In 1984, Data East released *Peter Pepper's Ice Cream Factory*, in which the kitchen hero has now graduated into his own eponymous business. Instead of burgers, Pepper must kick ice cream into waiting cones, and as you might expect there is another range of food-based enemies out to hinder him. While he cannot shake pepper, Peter now has the ability to haphazardly jump around, although he clambers up ladders with all the sluggishness of his *BurgerTime* incarnation.

BurgerTime received an arcade update proper in 1990 with *Super BurgerTime*. Clearly influenced by smash arcade games such as *Bubble Bobble* and *Rainbow Islands*, *Super BurgerTime* was as massive a step-up in gameplay and presentation, as you might expect given the eight-year gap. Apart from its cute graphics, Peter Pepper now moves considerably nippier than his arthritic forebear and many of the levels take place over more than one screen. There is also a range of bonus weapons that can help Pepper dispatch any menacing baddies, which partially offsets the fact the ingredients must now be jumped on three times, making that process a little trickier. Most likely due to the success of the Intellivision port, *BurgerTime* also received an exclusive sequel on the Mattel console called *Diner*, which attempted to merge the format with an isometric-style viewpoint.

Today, *BurgerTime* remains a bit of an oddity. Brutally difficult, yet original and compelling, its gameplay will endear it to few modern gamers. For an oft-touted forgotten title in the history of arcade games, it's received many updates over the years, going some way to dispel that belief. Chef Peter Pepper himself has made his mark too, featuring in the movies *Wreck-It Ralph* and *Pixels*, and one thing is for sure: whether you're an Eighties veteran or current-gen newbie, it's still hot in Chef Pepper's kitchen.

SEQUELS

BURGERTIME DELUXE

■ Originally released on the Game Boy, and now available on 3DS (via Virtual Console), mobile and PC, this – as the name suggests – is an upgrade of the original arcade game. Except it's not, really – it's just the same game with new music and levels. The screen is predictably cramped, but Pepper moves smartly and it retains much of the original's charm.

THE FLINTSTONES: BURGERTIME IN BEDROCK

■ Another Game Boy release, this time for the Game Boy Color. Wedded to the popular Hanna-Barbera cartoon, it's an upgraded port of *BurgerTime Deluxe* with *Flintstones* sprites replacing the originals. It does, however, have some additions such as power-ups (invincibility and speed, for example) and scrolling levels.

PETER PEPPER'S ICE CREAM FACTORY

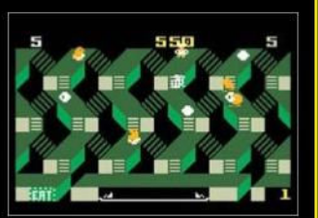
■ This (sort of) follow-up retains the one-screen format of the original but it is different mechanically. Pepper, having graduated to deserts, must now kick ice cream scoops somewhat improbably into their cones, but the main character moves too sluggishly for the game to be a genuine contender.

SUPER BURGERTIME

■ Released in arcades seven years after the original, *Super BurgerTime* is essentially *BurgerTime* given the *Bubble Bobble* or *Rainbow Islands* treatment, including a two-player mode. Multiple lands, power-ups and the ability to jump make it much more accessible than the original game – be warned, though, the game is still a tough cookie on later levels.

BURGERTIME WORLD TOUR

2011's revamp of the classic arcade game received mixed reviews, and it's easy to see why. The original's hook was its simplicity, and by yanking the game into 3D, much of that disappeared. Unfair deaths due to an errant camera and poor collision detection don't help making the game a very frustrating experience. This one is for hardcore *BurgerTime* fans only.



DINER

■ For the Intellivision-exclusive follow-up to *BurgerTime*, INTV took the reins and Ray Kaestner was called upon once more to code the game. This is an interesting take on the *BurgerTime* formula, but the isometric 3D effect doesn't really work with the gameplay and it just ends up being frustrating as a result. Like *World Tour*, it's for the devout *BurgerTime* fan.

On the Nintendo 64, Acclaim's *Jeremy McGrath Supercross* was unfortunately released around the same time as the far-superior *Excitebike 64*.

Pain awaits you...

EXPOSED!

Acclaim®

BEHIND THE SCENES OF THE CONTROVERSIAL PUBLISHER

The early NES title, *Othello*.

The NES version of *Airwolf* differed greatly to the one from UK's Elite Systems.

Dave Mirra Freestyle BMX was released in 2000 and well-received, despite the occasional graphical glitch.

WELCOME TO THE ROLLERCOASTER RIDE KNOWN AS ACCLAIM ENTERTAINMENT. FORMED IN 1987, THE GLEN COVE PUBLISHER HAD ITS FAIR SHARE OF UPS AND DOWNS AND HITS AND FLOPS. GRAEME MASON TALKS TO SOME OF THOSE BEHIND THIS EXPANSIVE, AND OFTEN CONTROVERSIAL COMPANY...

The movie was a flop and *Cutthroat Island* the game wasn't much better.

NOTES

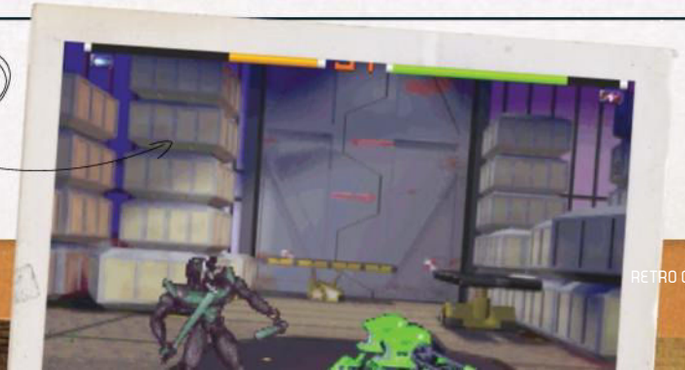
We start Acclaim's story with Greg Fischbach. "I started in Washington DC as a lawyer," he tells us – we're chatting with the industry veteran via his latest venture: internet chat app, Rabb.it. "And after moving to the west coast in the mid-Seventies, I started working at a practice in Los Angeles." Greg soon struck out on his own and began his own law firm, managing clients as varied as Richard Branson's Virgin and music legend Steve Miller (whom he also managed). Another client was Activision, and he was soon helping create development contracts for its programmers and designers, using a template similar to recording contracts. "We started getting involved a lot with [Activision] internationally," says Greg, "and one day Jim [Levy, Activision CEO] asked me to go out and find a president for Activision's international division. I came back with three really good candidates, so we sit down at dinner and he offers *me* the position – just like that! That's how I got into the videogames business."

> "I WANTED TO BE AT THE BEGINNING OF THE ALPHABET OR THE END"
> GREG FISCHBACH

In the UK, Quicksilva and Argus Press' Rod Cousens would soon thereafter meet with the entrepreneur. "My first encounter with Greg was at Softcon, New Orleans in 1983," remembers Rod. "I was there with Quicksilva and we had a small booth where we were demonstrating *Bugaboo The Flea*." The Quicksilva stand was approached by three men from Activision who were seeking US distribution opportunities. One of them was Greg Fischbach. "From there our long-standing relationship blossomed," says Rod, "and that initial meeting led to bigger things in 1984 when I set up Electric Dreams, backed by Activision."

Leaving Activision for a brief, ill-fated period as president of international at RCA Records, Greg was ready for a new challenge. "I'd moved my family to New York for RCA so I started looking for something to do. I called up a friend who was head of sales at Activision, and he said he'd just come back from CES and proceeded to tell me that the videogames business looked like it was going to be big again." The Activision man was Jim Scoroposki. "Jimmy asked me if I could find games, and I said, 'Yes that's easy,'" smiles Greg, "as I'd spent a lot of time in Japan, licensing out Activision's catalogue." The two men formed Acclaim, its name evidently chosen to precede their former company alphabetically. "I had chosen a Japanese name for the company," reveals Greg, "but Jim said no-one will understand it, pick something else." At the time, CES was the dominant industry show, and all exhibitors were listed alphabetically in its directory. "And I wanted to be either at the beginning of the alphabet or the end, but not in the middle," Greg continues. "So we started going through names, and Acclaim sounded great, so we checked with our lawyers and took it. We honestly gave no thought as to whether the name would be before or after any of the traditional companies." Jim and Greg would become joint founders of the new company; joining them approximately three months later was another Activision alumni, Rob Holmes.

Acclaim's first target was to take advantage of its founders' connections and license Famicom games for the American market. Greg spent two weeks in Japan, acquiring products to sell in the US. "I was introduced to Hiro Fukami by Hayao Nakayama [founder and then-CEO of Sega] on one of my first trips to Japan as president of Activision International," he explains. "So I called Hiro when we started Acclaim and persuaded him to join us. This time it was to find titles from the Japanese publishers that we could release in America, and this strategy enabled us to enter the market just within six months." The move was mutually beneficial; at the time Nintendo was struggling to attract western publishers to support its products outside of Japan. "The Nintendo model was that you paid for the inventory before you sold it," says Greg. "It was incredibly risky, and expensive. We looked at the games, went to the companies and cut the deals. We came back and had to pick ▶



Despite the first game's failure, *Rise Of The Robots* got a sequel two years later.

» Acclaim Teesside was moved into brand-new offices shortly after the takeover.

NOTES CONT.

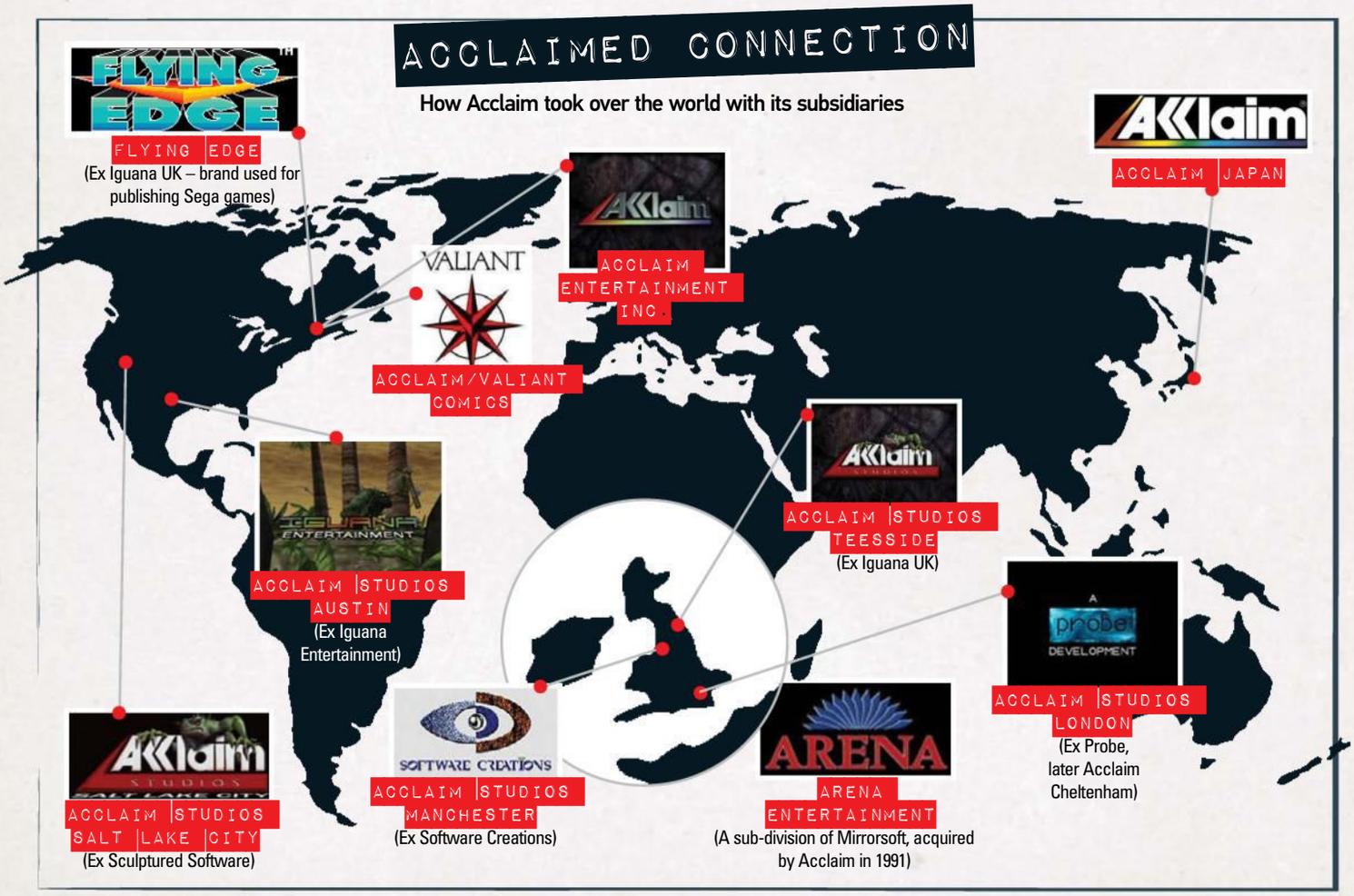
▶ four." These four included vertically-scrolling shooter *Tiger-Heli* and a space exploration game called *Star Voyager*. "They were all on the Famicom, but the big issue was where the money was going to come to support it. Jimmy and I had put in 250,000 dollars but we had no outside investment." At the last hour, an investor was found and Acclaim became four million dollars richer. "That gave us the cash to buy the inventory, and it landed in August of 1987. We shipped the games and closed the fiscal year in the same month having done 39 million dollars in business from a dead start in February." Acclaim Entertainment was up and running.

And the business snowballed. Rob Holmes and Greg went to Hong Kong and designed handheld LCD games and remote control joysticks as Acclaim expanded and quickly outgrew its modest beginnings. The company graduated from Jim Scoroposki's humble office to an entire house, purchased by Jim, and rented back to Acclaim. "There were 30-odd of us, people in the basement, upstairs, everywhere, basically sales and marketing," says Greg. "I was responsible for finding top product, mainly from Japan." Acclaim was replicating what its founders had done at Activision – making distribution deals with large companies which would yield the advances that supported the company. And thanks to Greg's contacts in Japan, there was a stream of high-quality games to publish.

Yet Greg and Jim's desired expansion was strangled due to Nintendo's restriction on individual companies and the number of games they were permitted to release. The Japanese giant allowed five 'slots' to each publisher, and once that number was reached, it was game over for the calendar year. Seeking a way around this, Acclaim purchased LJN Entertainment in 1989, a division of MCA which had begun distributing NES games around the same time, thus doubling the number of Nintendo games that Acclaim could release per year. Its five games the previous year had included two titles from UK's Rare (*Wizards And Warriors* and *WWF Wrestlemania*, the first in a long line of Acclaim wrestling games), *Rambo* and the TV licence *Knight Rider*. 1989 saw the debut of *Kwirk*, a puzzle game for the Game Boy and also star of Acclaim's own cartoon, *The Power Team*, which featured in American TV show *Video Power*. On the NES came another TV licence, *Airwolf* (which differed greatly from the UK versions published by Elite), *Wizards And Warriors* sequel, *The Iron Sword*, and a conversion of Raffaele Cecco's classic shoot-'em-up, *Cybernoid*. Following the acquisition of LJN, Acclaim in total published ten Nintendo games in 1990, greatly increasing its market presence.

ACCLAIMED CONNECTION

How Acclaim took over the world with its subsidiaries



Meantime in the UK, having been 'devastated' at Greg Fischbach's move from Activision to RCA, Rod Cousens was persuaded to remain at the company and continue his role at Electric Dreams. Rod explains: "Activision was in a state of flux. Greg and I had remained close and were liaising on his options within Europe. When Activision all but closed its operation in the UK, it was opportune to join Acclaim and set up a fledgling organisation from my home in Hampshire." Rod began work as vice president of Acclaim's UK operations and would soon be overseeing the whole of European development. "But my joining Acclaim was surrounded in such secrecy that Greg once hid me in the basement of Acclaim's offices in Oyster Bay while he conducted an interview," he laughs.

Licences and hits continued for Acclaim on a moderate to impressive scale as the Nineties gained momentum, including NES and Game Boy arcade conversions of *Double Dragon II* and *Double Dragon III*, along with a burgeoning relationship with coin-op manufacturers such as Williams and Midway. The latter provided the source material for a release that would push the publisher into the stratosphere of videogame publishers. Having already published games around the popular cartoon, *The Simpsons*, with varying degrees of success, Acclaim was about to hit a gold mine. "It was clear that titles coming out of the arcades represented a much bigger opportunity," says Greg, "as basically the audience knew about them beforehand. The home market was getting crowded and trying to stand out was getting harder." Midway's chairman, Neil Nicastro, had already struck a deal with Acclaim two years earlier for the home publication of its games. "We cut a deal, paid an advance, but got nothing that set the world alight," bemoans Greg. "So I met with him and told him the royalty rate was too high and that we were paying too much up front." The two worked out another deal at lower rates. "And within a year, we got *Mortal Kombat*," grins Greg, "and suddenly the whole thing changed."

WWF Wrestlemania wasn't the most auspicious of starts for Acclaim's wrestling license, but it got better.

A peek inside the offices of Acclaim Teesside courtesy of Trevor Storey. Hey, that looks like a Vetrex.

LICENCE TO KILL

Acclaim had a choppy history with licences. Here are five of its worst efforts

BATMAN FOREVER

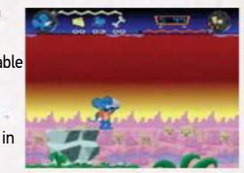
■ While the arcade, Saturn and PlayStation games were decent enough brawlers (and also published by Acclaim), the Mega Drive and Super Nintendo versions were distinctly lacking in gameplay and excitement. The idea of using *Mortal Kombat*-style digitized graphics was a sound one, and the game looked nice, but it was just too slow and repetitive.

TOTAL RECALL

■ Acclaim had a pretty solid record on the NES, so this licence of the popular Arnold Schwarzenegger movie came as a bit of a surprise. Terrible, unresponsive controls, unrelentingly poor level design and grating sound helped make a poor game. And not a three-breasted woman in sight.

THE ITCHY AND SCRATCHY GAME

■ Developed by Bits Corporation, this offshoot licensed game from *The Simpsons* had a troubled development, going through a number of development staff. Dodgy controls and the inevitable boredom through repetition (there's a reason the cartoons only last 30 seconds) resulted in a major clunker for Acclaim.



SOUTH PARK: CHEF'S LUV SHACK (N64)

■ It was a toss-up between this sub-*Mario Party* collection of weird and rude games and another *Mario* rip-off, *South Park Rally. Chef's Luv Shack* wins out thanks to a tedious repetition of questions and speech. Even multiplayer – which should be the real meat of the game – becomes tiresome very quickly and the humour is schoolboy level.

REVOLUTION X

■ Although it could be argued there's pleasure to be had from *Revolution X*, the boring nature of the gameplay is likely to test the most patient gamer. With dull graphics and an obligatory rock soundtrack (the original music was licensed from Aerosmith), it was made for the arcades, and should've stayed there.

The censored Nintendo versions of *Mortal Kombat* lacked blood and the gore of the bloody fatality moves.

Acclaim was always keen to port its games to a wide range of different formats.

Alien 3 was a decent movie licence, despite not bearing much relation to the third film in the *Alien* franchise.

M*ortal Kombat* was the challenger to the *Street Fighter* one-on-one fighter crown. And not only did the Midway game steal the crown, it jammed it down the Capcom game's throat before delivering a violent, yet gloriously entertaining, finishing move. As part of its arrangement, Acclaim would publish many of the home versions including the SNES and Sega Mega Drive. "The issue was with *Street Fighter*," remembers Greg, "as it had the better market presence. So we took *Mortal Kombat* to CES and made a big deal about it. Then we decided to spend *a lot* of money on a major advertising campaign." Greg pauses as we ask him exactly how much. A mischievous grin appears on his face. "Ten *million* dollars."

Meantime, back in Europe, Rod Cousens and colleagues were making waves too. "We had the belief and courage of our convictions," says Rod. "And we were great marketeers. We took videogames mainstream and forged collaborations with the wider entertainment industry." Deals with record labels such (Polygram) and movie studios (Columbia Tristar) funded Acclaim's expansion in Europe. "We had licensed our games for Sega machines to Mirrorsoft and when they went out of business, we got back the finished games and became the first company to publish on both competing formats. We were flying high." And, thanks to *Mortal Kombat*, Acclaim was about to go even higher. Rod continues: "The industry was growing up and the audience was widening. Videogames were going mainstream and with that, the content was becoming more graphic and controversial." The publisher revelled in the violent nature of the beat-'em-up and created an iconic advertising campaign based around its two-word title. "These adverts were going out worldwide," explains Greg, "so a lot could get lost in translation. The basis of our campaign was that the fewer words, the bigger the game's footprint could be." The result was a series of simple television spots with no spoken words other than that simple exclamation of: 'MORTAL KOMBAT!'

> "WE WERE FLYING HIGH." AND, THANKS TO MORTAL KOMBAT, ACCLAIM WAS ABOUT TO GO EVEN HIGHER"
>
> ROD COUSENS

Of course, Nintendo wasn't keen. "Howard Lincoln [Nintendo of America chairman] saw the game and just shook his head at me," recalls Greg. "First of all, they were afraid to publish it all. And then they said, you have to change the blood. So we changed the colour of the blood, but the versions that sold the most were on Sega, because people wanted the game as it was supposed to be." And in the United States, *Mortal Kombat*'s blood and violence became the start of a long chain of events that led to the creation of a self-regulatory board of videogame ratings called the ESRB – Entertainment Software Rating Board. Formed by a number of publishers, together with Nintendo and Sega, Acclaim were principally involved in the ESRB's creation, although whether this was out of a sense of responsibility for the political fallout after the *Mortal Kombat*'s release is unlikely. "I was a bad man," laughs Greg, "and I had to testify in front of congress, with everyone saying I was corrupting the nation's youth." Naturally, the front page headlines and political thrusts between Sega and Nintendo only served to publicise *Mortal Kombat* further, and push its sales into the realms of pure fantasy. "The initial ship was 50 million dollars," notes Greg. "And it just went up from there."

By now, the Acclaim licensing money train was taking in all manner of IPs. It had begun publishing wrestling games under the *WWF* banner, again with varying degrees of success; and while Greg rues missing out on the official *FIFA* license to arch-rivals Electronic Arts, the playable and best-selling two-on-two basketball sim, *NBA Jam*, more than made up for the loss of the official soccer game. Coupled to this, when cable television

Rumours that Retro Gamer editor Darran Jones is a huge fan of the Mary-Kate & Ashley Olsen games refuse to die down, even today.

HEADLINES AND DEADLINES

Seven examples where Acclaim courted controversy

EVIDENCE

TUROK BY NAME

■ For the release of 2002's *Turok: Evolution* on the GameCube, Xbox and PS2, Acclaim challenged would-be parents to name their offspring after the famous dinosaur killer. The reward amounted to a cool $10,000 in the US, but family organisations and the press in general were horrified that a company could encourage parents to do such a thing, despite it not much dafter than naming your child after a film or sports star.

EVIDENCE

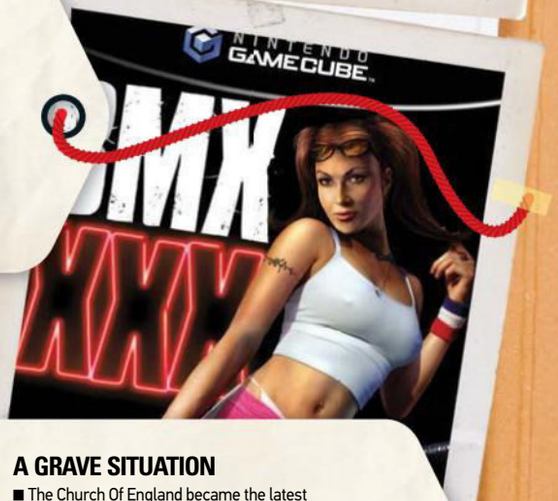
BURNING OUT THE TICKETS

■ *Burnout 2* was a game that encouraged dangerous driving within a fictitious and harmless environment. Urging drivers to do the same in a one-day campaign that was to reward hazardous transgressions in real life was probably a step a little bit too far, even for the likes of Acclaim, and the stunt was pulled before it even happened, most likely under government pressure.

EVIDENCE

BMXS AND BOOBIES

■ While the scandal made *BMX XXX* a huge talking point online, shops refused to stock it, causing it to flop badly. The game itself was a half-decent BMX simulation enshrouded in a bawdy series of video clips of half-naked women. It was even reported at the time that Dave Mirra, star of Acclaim's more serious BMX games, was suing Acclaim for using his name to promote the game.



EVIDENCE

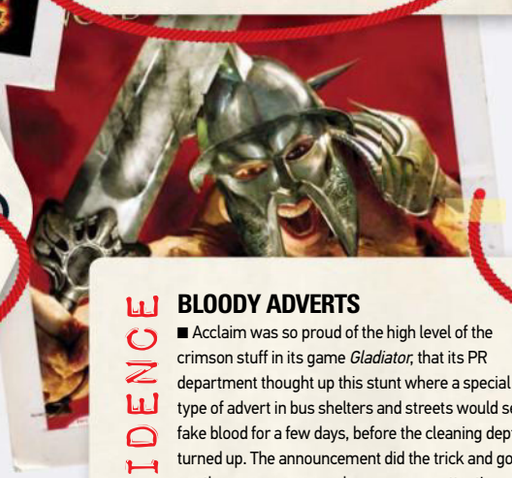
MORTAL KOMBAT

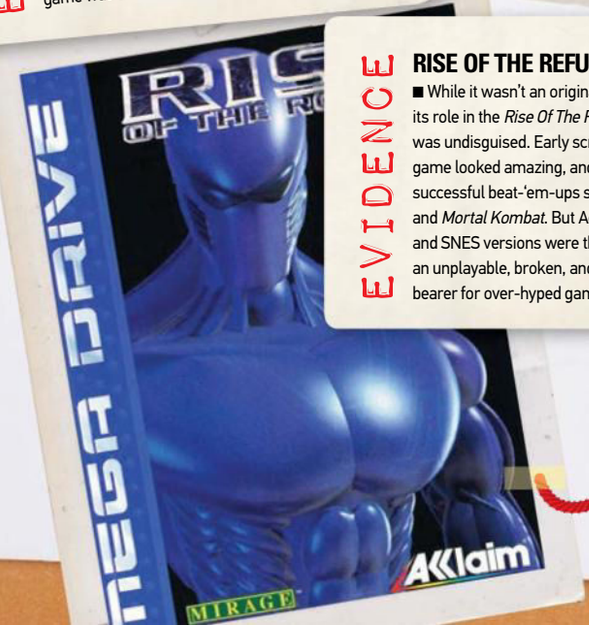
■ It wasn't just the violence that provoked such an outcry when *Mortal Kombat* was released into arcades and homes; it was the way that violence was depicted. Now, in full digitized glory, we had decapitations, spinal eviscerations and bucketloads of blood, all leading to the game getting mountains of press and a hearing in Congress in the US. Naturally, Acclaim milked the attention for all its worth, and the game was a massive seller.

EVIDENCE

A GRAVE SITUATION

■ The Church Of England became the latest adversary of Acclaim when it objected to the publisher paying relatives of the recently departed to advertise on gravestones. The game was *Shadowman 2*, suitably devilish in nature, but it backfired when it transpired that planning permission from local authorities was required for what was, in effect, outdoor advertising.





EVIDENCE

RISE OF THE REFUSE

■ While it wasn't an original Acclaim property, its role in the *Rise Of The Robots* hype machine was undisguised. Early screenshots of the game looked amazing, and it rose on a crest of successful beat-'em-ups such as *Street Fighter* and *Mortal Kombat*. But Acclaim's Mega Drive and SNES versions were the same as the rest: an unplayable, broken, and it's a standard-bearer for over-hyped games.

EVIDENCE

BLOODY ADVERTS

■ Acclaim was so proud of the high level of the crimson stuff in its game *Gladiator*, that its PR department thought up this stunt where a special type of advert in bus shelters and streets would seep fake blood for a few days, before the cleaning dept turned up. The announcement did the trick and got a rather average game above-average attention, and like many of Acclaim's PR stunts, the idea was withdrawn once the furore reached its peak.

DEFINING GAMES

The games that put Acclaim on the map, for better or for worse

TIGER-HELI

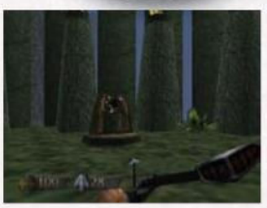
■ Acclaim made its name in the Eighties by publishing NES games, and this shoot-'em-up was arguably the best of the lot, and according to Greg, its biggest seller. Developed for the arcades by Toaplan, *Tiger-Heli* was published by Taito with a native Japanese version coded by Micronics, before Acclaim secured the licence to distribute the conversion in the US. It's a insanely playable and addictive game, if a little simplistic by today's standards, and was succeeded by *Twin Cobra* in 1987.

NBA JAM

■ Acclaim had a good relationship with Midway, and had already published the arcade giant's previous basketball game, *Arch Rivals*, for multiple home systems. Midway's follow-up arcade game was again two-on-two basketball and very successful, even giving rise to a new genre of action sports games. All the Acclaim conversions (Mega Drive, SNES, Game Gear, Mega-CD) were well-received, apart from the Game Boy which struggled to adapt the fast-paced game to its small screen.

MORTAL KOMBAT

■ Having renegotiated its deal with Midway following a string of not-so-impressive releases, Acclaim hit the big time with this one-on-one fighter that took on the almighty *Street Fighter*. Buoyed by the controversy that followed the game wherever it went, *Mortal Kombat* became the game that defined the direction Acclaim would take over the next ten years. Its USP was its gore; with this removed from the Nintendo versions, it was inevitable the uncensored Sega versions would sell best.



TUROK: DINOSAUR HUNTER

■ It may have infuriated gamers thanks to its respawning enemies that contrasted annoyingly with limited ammunition, but there's no doubt this N64 exclusive title was a huge seller for Acclaim, assisted by the popularity of dinosaurs at the time and a lack of similar titles on the Nintendo console. A PC port followed but the game met a quick death on a format swamped with first person shooters. A key game then, but it hasn't aged well.

BURNOUT 2: POINT OF IMPACT

■ Acclaim struck gold when it sealed a deal to publish Criterion's superb series of racing games. With realism not even given a spot in the back seat, the original game set the template while this sequel upped the thrills, speeds and crashes. Encouraging the player to break practically every rule of the road, *Burnout 2* rewarded close shaves, speeding and dangerous driving with a boost meter enabling crazier moves. Superb graphics and sound completed a winning package.

NOTES CONT.

▶ company Tele-Communications Inc. (or TCI) invested in 25 per cent of the company (to the tune of 150 million dollars according to Greg), Acclaim suddenly found itself incredibly cash rich. This sudden influx saw Greg seek several acquisitions as Acclaim reasoned that the only way forward was for it to have its own development houses. In this hectic period, three notable developers were bought, and they all had previous experience with Acclaim. In America, Salt Lake City's Sculptured Software and Texas-based Iguana Entertainment became Acclaim studios, with the latter also coming with another studio in the form of Iguana's UK-based operation in Teesside. Another UK software developer, Probe Software, was also acquired and became Acclaim London, latterly Acclaim Cheltenham. Graphic artist Trevor Storey remembers when the takeover of Iguana UK took place. "I was there when we were doing *NBA Jam* for Acclaim and we were on the 14th floor of a tower block in Teesside. We eventually moved down to the larger 13th floor offices, but when Iguana became part of Acclaim, we moved to brand new offices in Stockton." Acclaim Teesside's biggest game was *Shadowman* and its sequel. "*Shadowman* was great to work on," remembers Trevor. "And Simon [Phipps] and Guy [Miller, the game's designers] made it so much fun right from the start. The idea of including things like voodoo and hell was right up my street, so I just loved it." *Shadowman* was the second of a series of games based around characters from the Valiant imprint of comics. The first had been an early title for the Nintendo 64 and was based upon the label's most famous of creations.

"We paid 75 million dollars [for Valiant] and we lost a shitload of money," exclaims Greg with a wide smile. "It was a banker. It was the third biggest comics company, and we were looking for something else to invest in. It presented itself as it was known we were looking at other properties. We actually wanted Marvel, but didn't have enough cash." The idea was simple: Acclaim would continue to publish Valiant's line of popular titles while also developing games based around its characters. "But we bought into the comic book business right at the top of the market," laments Greg, "and then all of a sudden it starts to fall apart. And we rode it all the way down." That first game was, of course, *Turok: Dinosaur Hunter*. Greg elaborates: "I remember Nintendo were holding on to the vestiges of the cartridge era and everyone was pointing to Sony. We'd built a motion capture studio, which cost roughly ten million dollars, and were aiming to use it with the products. And *Turok* was one of the first 3D shooters. It had tight gameplay and great graphics. I remember showing it off to people and they would sit there spellbound and want to see more." Rod Cousens, who was by now the president of Acclaim Europe recalls how, despite pressure to publish on the PlayStation, *Turok* became a N64-exclusive title. "Nintendo was launching its new machine and was demanding exclusivity from us. This was problematic for Acclaim properties because we had a rather strong repertoire of licensed products which had to be available on all completing platforms. We searched for a solution within our IP and came up with *Turok*. It was at a time when dinosaurs were vogue among a young audience – and it worked."

Acclaim's Shadowman stand at the ECTS show in London.

NOTES CONT

By the late-Nineties, Acclaim was still acquiring new licences. The Austin studio specialized in sporting games such as *NFL Quarterback Club* and *All-Star Baseball*. Meantime, Acclaim Europe created many of the company's infamous and controversial publicity stunts. "In Europe, we were edgy and prepared to take more risks and had a very creative marketing team," notes Rod. "They used to brainstorm ideas, and our PR head, Simon Smith-Wright, came up with the campaigns for the *Burnout* [speed tickets] and the *Shadowman* gravestones, which provided great press coverage for the games." Unfortunately, despite the headlines from tabloids, all was not well at Acclaim. Competing studios were abundant; licensing costs had sky-rocketed; and consumers were becoming much more savvy thanks to the rise of the internet, although in the case of *BMX XXX*, that part of the equation worked exceedingly well. "The idea behind it came from the studio that had written *Dave Mirra BMX*," recalls Greg. "They gave us the proposal, and in terms of development cost, it was ok, so we took a shot at it." Having seen the controversy that *Grand Theft Auto* had created, Acclaim saw an opportunity, and a BMX simulation featuring semi-naked women must have seemed like a good idea at the time. "We got hundreds and thousands of hits, huge amounts of traffic on our website," boasts Greg. "But then retail backed away from it. Videogames were still often perceived as toys, so basically, there was no distribution for the game, and that caused it to collapse." Greg pauses before noting solemnly, "It was a bad mistake. It didn't fit."

> "WE DID BATMAN FOREVER, AND THAT GAME WAS WRITTEN VERY POORLY"
>
> GREG FISCHBACH

It was the beginning of the end. The pressure to satisfy shareholders, as well as consumers, was taking its toll. "We did *Batman Forever*, and that game was written very poorly," admits Greg. "When you deal with creative properties, sometimes it just doesn't work. We did a skating game that got great reviews [*Aggressive Inline*], but it sold nothing." Perhaps more telling were the cracks that had started to appear at the very core of Acclaim, as Rod reveals. "From my perspective there were two fundamental factors that contributed to Acclaim's demise. Firstly, it was run as a triumvirate with Rob Holmes the glue that held it together; when he left, we lost a lot. The second was a weakness in product development, combined with a changing, more demanding and sophisticated audience that was not as easily swayed by marketing." It was a challenging period for the publisher which had got some way out of control. "And the question was how to solve it," says Greg. "We had recognised it the year before; but at the end of the day we were unable to answer it." When we push Greg to elucidate on this ambiguous statement, he cites the breakdown of relations alluded to by Rod above. "The foundation of the company was always my and Jimmy's ability to work together," says Greg carefully. "And when that ceased, it changed the dynamic. Together we could solve problems; separately we couldn't, and it was pulling apart. Businesses are actually really fragile. Acclaim had a lot of love in it, but when it breaks, it breaks. And it broke."

The end for Acclaim was a messy affair. Threats of legal action and numerous accusations against its former founders were abundant. In its lifetime, its games were sometimes brilliant and its methods eye-opening. And sometimes its games were terrible, and its marketing cringe-worthy. But it was never, ever, boring. ✱

South Park Rally was another derivative and lamentable game inspired by the popular cartoon.

WHERE ARE THEY NOW?

Here's what became of some of Acclaim's major players and figureheads

GREGORY FISCHBACH

■ After Acclaim closed, Greg moved away from games and founded his own venture capital firm. His latest venture is Rabb.it, a browser-based chat facility that offers a host of other social-networking and video features.

ROD COUSENS CBE

■ In May 2005, Rod was appointed CEO of Codemasters before being awarded a CBE in honour of services to the videogame industry in 2010. Earlier this year, he left Codemasters to join Cambridge developer Jagex.

TREVOR STOREY

■ Today Trevor is a freelance 2D/3D artist involved in concept art, book and album covers. You can check out his latest work at smilastorey.wix.com/trevor-storey.

One of Acclaim London's most accomplished games: the RC racer, *Re-volt*.

Acclaim's strong TV connections continued with this third-person action game based around the series *Alias*.

WALKER

Developed by the Scottish software house behind Lemmings and Grand Theft Auto, as sci-fi shoot-'em-ups go, Walker was anything but pedestrian. Mike Bevan talks to designers Ian Dunlop and Neill Glancy

IN THE KNOW

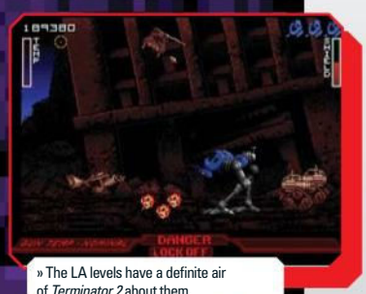
- **» PUBLISHER:** Psygnosis
- **» DEVELOPER:** DMA Design
- **» RELEASED:** 1993
- **» PLATFORM:** Amiga
- **» PLATFORM:** Shoot-'em-up

There's a moment near the beginning of *Walker* as our plucky mechanised killing machine enters war-torn Berlin circa 1944. Planes fly overhead dropping tiny paratroopers that drift slowly down the screen, chucking the occasional grenade your way. Until, that is, you let rip with your 30mm calibre cannons on their canopies and they plummet to earth with an unedifying splat. It's the first of many violently absurdist little touches in a game that pits a 40-foot cross between ED-209 and a giant robot chicken against hordes of hopelessly outgunned ant-like troops through past, present and future combat zones. "I blame Paul Verhoeven," laughs programmer Ian Dunlop, citing the less than subtle Dutch director of *Robocop* and *Total Recall*. Like two other famous products of Dundee-based developer DMA Design – *Lemmings* and *Grand Theft Auto* – *Walker* is a game with a warped sense of humour and a massive body count. An Amiga exclusive, its graphic carnage and detailed animation made for a memorably apocalyptic romp that stood out in the ranks of Nineties 16-bit shooters. "I was looking for contract work in 1990 and found myself at DMA Design talking to David Jones and Scott Johnson among other people," remembers Ian, explaining the genesis of the game. "They were pushing some tech that Scott had come up with. He had modelled a 3D texture mapped 'Walker head' (using 3D software he wrote) and this allowed him to render it out in different orientations. This was quite unique at the time. Those 3D frames/positions were subsequently turned into sprites which gave the *Walker* its unique ability to look around the pseudo-3D environment. So, the conversation went something

» Can it be so hard to find a parking place in downtown Berlin on a Saturday night?

» This train is completely harmless, but hey… it's probably carrying Nazi gold bullion or something.

» Walker pilots laugh at your primitive and flammable Zeppelin technology.



» The LA levels have a definite air of *Terminator 2* about them.

like this: 'Hey, let's create this cool side-scrolling shoot-'em-up featuring this Walker character that Scott has made.' That was literally the entire vision."

"I'm not sure they even expected a game out of me," confides Ian. "I was a single developer working contractually for £500 a month. At the time that felt like a lot of money but looking back on it, it was a very risk-free proposition for DMA Design. I couldn't complain as it was great working for DMA and I did eventually get a salaried job out of it at the end." However it took the skills of an external artist, Neill Glancy, in tandem with Ian, to fully flesh out the *Walker* universe. "I worked in a computer shop in Scotland selling games and hardware," recalls Neill. "Ian was a customer and we would chat about games. He had been working on *Walker* for a while but felt the graphics could be better. I had been working on pixel art games and projects for some years so offered to create an entire set of level graphics for the game.

"These were the most complex pixel graphics I had ever made with motion blur and dynamic lighting and shadows. *Terminator* was a big influence on the style as was *Akira* in the work I did for the project. Ian installed the graphics and was thrilled… they looked really cool and the little men were a tad bigger and easier to see die! Ian took this build to DMA to show Dave Jones." But although Jones was impressed, because Neill was not an official DMA employee some of his work for *Walker* was curtailed for alternative designs by the in-house art department. "During development I would hang out with Neill and we would always play games and discuss game development," explains Ian. "Neill was great at bouncing ideas off of and getting great feedback. He even created a unique vision for the art of the game based on some of *Terminator*, but unfortunately I couldn't get DMA to use his artwork due to office politics. But I did my best to get the art team working on *Walker* to adopt some of Neill's stuff – so it sort of made it in there."

One obvious similarity that *Walker* shares with DMA's popular *Lemmings* franchise are the tiny animated 'stick man' characters which in both games display a desire to bite the dust in the most irresponsible ways possible. Whether running towards your gigantic murderbot only to get mown down by machine gun fire, shooting from buildings or attacking on jet packs or hang-gliders, their average life expectancy is somewhere on a scale of nanoseconds. "I think the scale of the game that DMA had envisioned, given the size of the Walker, called for small enemies," admits Ian. "It wasn't something I thought about for a long time given the 'size' of the *Walker* and being exposed to *Lemmings*…"

"We really enjoyed 'pixel mischief'," chuckles Neill. "And *Lemmings* showed us that doing sick things to little sprite ▶

WALKER 101

■ *Walker* puts you in the pilot seat of a bipedal killing machine with an uncanny resemblance to a giant metal chicken. Equipped with a *Terminator*-style time drive the Walker must fight through four distinct levels – Berlin 1944, Los Angeles 2019, The Middle East of the present day, and the Great War of 2420. Along the way you'll be attacked by scores of tiny troops and their puny war machines. Unusually for a 2D action game, *Walker* uses a mouse-controlled targeting system for precision carnage.

"Terminator was a big influence on the style as was Akira in the work I did for the project"

Ian Dunlop

MIGHTY MECHS

Seven assorted robo-warriors from alternative mecha-themed videogames

ASSAULT SUIT

■ A rugged and versatile combat mech fighting for the Pacific States Marine Corps in Konami's *Cybernator*, or *Assault Suits Valken* as it was known in Japan. The Assault Suit is well-armoured and can be equipped with rocket boosters for space flight.

AT-ST

■ The not-so-mighty scout walker from the *Star Wars* saga is possibly the only mech to be defeated by small furry teddy bears. Also, in the *Return Of The Jedi* arcade game you get to pilot your own stolen AT-ST as Chewbacca. Just mind out for those logs...

CYBERBOT

■ Debuting in Capcom's beat-'em-up *Armoured Warriors*, these brawling machines later got their own spin-off, *Cyberbots: Full Metal Madness*. There's an impressive range choose from including this tank-like creation, Guldin.

SLUGANOID

■ This beast appears in *Metal Slug 2* as our heroes enter an Egyptian tomb. Equipped with twin machine guns and a powerful cannon, it's great for taking out the boss found at the end of the level.

WANZER

■ The main hardware of Squaresoft's *Front Mission* series, these mecha derive from the German word wanderpanzer or 'walking armour'. Endlessly customisable, they fight alongside standard military vehicles.

TIMBER WOLF

■ Probably the most iconic vehicle from the *MechWarrior* videogame series, this mean-looking mech carries a deadly arsenal of machine guns, lasers and shoulder mounted long-range missiles and is the weapon of choice for most Clan Wolf pilots.

TITAN

■ Drawing on decades of design across videogames, the signature moment of *Titanfall* comes when your colossal charge comes crashing down and your view changes from on foot to the controls of a giant mech.

creatures was fun and funny! Pixel animation was a very time consuming process, though… In the research and development work I did on the game I also baked in lighting and shadows into frames of animation as well as motion blur. This was quite unheard of at the time as most games when a gun went off you just saw a muzzle flash. Now when the muzzle flashed it illuminated the shooter as well as the ground he was standing on and cast his shadow behind him. This work was heavily inspired by *Akira*. Unfortunately it didn't make it into the final game as it would have been too much work to overhaul all the prior content that was already in place. Although this was a bit crushing it had a silver lining as Dave Jones hired me as a designer. From there I went on to work on [the unreleased] *Walker 2* as well as a music game proposal for the newly-minted Rockstar Games."

» This tank was a stumbling block for many players. Hint: take out its tracks as soon as you can.

Compared with many other scrolling Amiga shoot-'em-ups *Walker* stood out in offering a unique control system combining a mouse-controlled gun reticule and keyboard or joystick control over movement of your mech's body. It was also unusual in using backgrounds scrolling from left to right, against the grain of the traditional arcade style shooter. "I wanted to allow the player to have full freedom to shoot anywhere on the screen, but at the same time move the Walker," Ian explains. "It worked without the need for any joystick peripherals. I think it also gave the gameplay a bit more depth and interest. I like adding layers

» Watch out for jets dropping napalm…

» Mobile missile launchers and A10 Thunderbolts can be very bad news.

» Oh no! The Walker makes a cameo appearance in *Lemmings 2: The Tribes*.

of detail like that. That's why you could also lock-on to enemies. Regarding the scrolling, I seem to remember that the Walker orientations were only ever rendered facing from right to left and somewhat remember Dave Jones saying that he wanted it to be different. I do recall getting some tips from Dave and one of the other programmers on how to do efficient full-screen scrolling; something they had used on *Menace*."

Ian also tells us about the additional sections of the game that were later dropped due to time restrictions. "There was an underground platform section that was basically my rip-off of *Prince Of Persia* albeit featuring guns," he says. "The idea was that at the end of each *Walker* level you got out of the cockpit and went into an underground base. There were four parts to an explosive charge that you had to plant in key locations on different floors accessed via an elevator. Along the way you jumped across gaps, shot bad guys and placed the explosives. When the last explosive was placed you had a small fixed amount of time to escape. It was canned because while it was fully functional, it was all programmer art and Psygnosis wanted the game out quickly because of piracy and sales fears and didn't want to invest the money to get artists to finalise all the artwork – which was quite considerable."

Walker was also one of the last games released by Psygnosis that supported basic Amiga models, although those with memory upgrades got a little bonus. "If you had more memory you got full speech between the Walker and HQ," says Neill. "This was recorded between Ian and me over walkie-talkies…" By the end of the project Neill was heavily involved in the layout of the game for the last two eras, the Middle East and futuristic 2420 levels, while Ian concentrated on enemy AI. Admittedly it's possible that some players will never have seen these last two levels, at least not without cheating. "I think the consensus was the game was too hard," confesses Neill. "But the classic design problem was offering enough challenge so you didn't blow through the content too fast. The game didn't have many levels so the difficulty ramp was quite steep. Now with the notion of difficulty levels and casual play it would be very different. Back then there wasn't a formal notion of Q&A. You just sort of banged away on the game as much as you could as a team but it wasn't as organised or structured as it is now."

Ian reveals that plans were also in place for a console conversion of *Walker*. "After launch I started doing an initial port to the Mega Drive. I didn't get very far, though. It was cancelled soon after I started and I left DMA Design soon after that to work at Iguana Entertainment UK. About the same time I started work on the *Walker* Mega Drive port Neill was hired to direct work on *Walker 2* [see boxout]. That project was ultimately shelved as well." Neill later followed Ian to Iguana, developing the SNES platformer *Zero The Kamikaze Squirrel* and working as a lead designer on the 1998 *South Park* videogame. Ian's credits at Iguana include the first two *Turok* titles, before making a move to Ion Storm in Texas where his projects included *Deus Ex: Invisible War* and *Thief: Deadly Shadows*. His recent developments include *Contra 4* and *Konductra* on the Nintendo DS. As for DMA Design, after producing the first two *GTA* games the company closed its Dundee office, moved to Edinburgh, and became Rockstar North. The rest, of course, is history. But we've yet to see any 40-foot mechs rampaging through Liberty City. And that's a pity, we say. ✱

» Shades of *R-Type* in the final boss perhaps?

DEVELOPER HIGHLIGHTS

MENACE
SYSTEM: Amiga
YEAR: 1988

LEMMINGS (PICTURED)
SYSTEM: Amiga
YEAR: 1991

GRAND THEFT AUTO
SYSTEM: PC, PSone
YEAR: 1997

» *Walker*'s moody futuristic cover artwork set the tone for the game nicely.

WALKER 2

Shortly after *Walker* was completed Neill Glancy was recruited by DMA to work on a sequel, which sadly never saw commercial release. However Neill still has much of the original concept art, some of which we present here. "We mainly wanted to fix a lot of the shortcomings of the first game namely lack of weapon variety," Neill tells us. "In addition we planned to completely overhaul the visual quality to incorporate some research work I had done on the game. We were looking at the 3DO system because it used CD-ROMs and we wanted to stream the game's stage backgrounds off the disc. The sequel was planned to have a customisable Walker 'frame' and players would earn money from performing missions. As the player earned money they could upgrade their base facilities and capabilities. Enemies would have been far more competent and interesting to attack, and elaborate boss battles as well as a complex story was envisioned. Several new parallaxing technologies were also researched and we planned more movement between screen layers as well as a feature called the 'turntable battle system'. *Walker 2*'s design was fascinating, very ahead of its time and had many elements we see in modern games. When I left DMA to move to the States the game kind of came with me I suppose. I would still love to make it one day if someone has several million dollars to spare!"

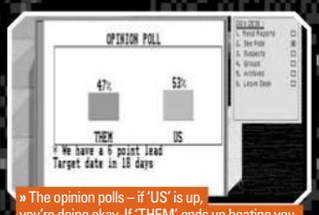
Minority Report

INTERESTING GAMES YOU'VE NEVER PLAYED

AMIGA 500

For this month's Minority Report, alleged YouTube 'content creator' Kim Justice is here to tell you that only the Amiga makes it possible for you to play these unheralded gems. Well, most of them anyway...

» The PM might be all smiles in public, but certainly not to you. Unsubtle warnings about flying lessons are his speciality.



» The opinion polls – if 'US' is up, you're doing okay. If 'THEM' ends up beating you, you might get a sudden, fatal visit from HR.

» A daily report from one of our interrogation rooms. It turns out that people who are under torture use colourful language often.

FLOOR 13

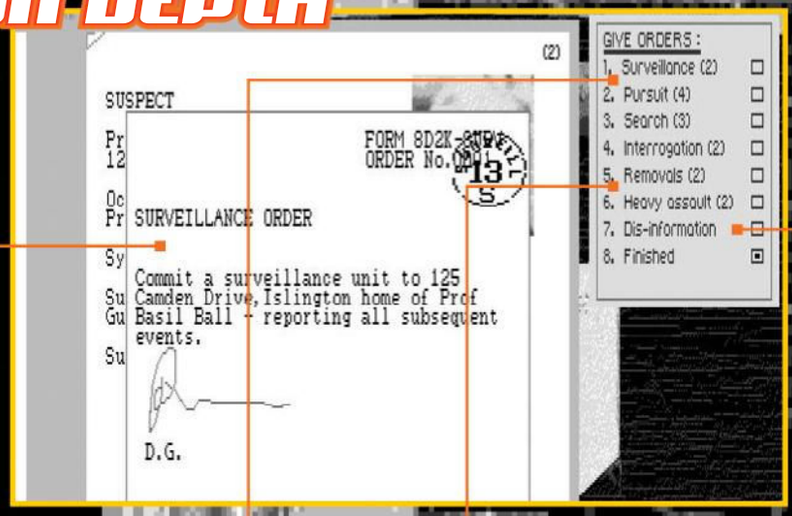
■ DEVELOPER: **DAVID J. EASTMAN** ■ YEAR: **1992**

■ This is a boring game. That doesn't seem like the ideal way to sell anybody on anything, but it's boring in a very special way, unlike any other. You are the newly-appointed director general of an innocuous government department that, on the surface, deals with 'Agriculture And Fisheries' – a place where promising political careers go to die. Behind the scenes, however, the department is a front for what is, essentially, a secret police designed to keep undesirable elements in check by any means necessary, from smear campaigns and misinformation to kidnappings and the occasional assassination. A place where the penalty for failure isn't political death, but literal death – usually via the window of your 13th floor office, located in the picturesque London Docklands.

The game takes place in segments, with situations developing over three-week periods that can range from someone getting ready to reveal disturbing secrets about the government, to an attack on the royal family itself. How you handle these situations determines how the government is performing in the opinion polls – if you're still in the lead, the PM might consider giving you a knighthood. If you go behind, he'll very subtly warn you that you should think about taking up flying lessons. There's also an underlying subplot concerning "The Secret Masters of Thoth", a sect which, apparently, pulls all the strings behind the scenes, and which you are a member of – every so often, members want you to pull the strings for them.

With such a vast Secret Police apparatus at your disposal, it can be tempting to deploy it with extreme prejudice. A shopkeeper was caught badmouthing the Prime Minister to some schoolchildren? Let's assign a heavy assault strike team straight away! Such play will result in a quick game over. This is not a James Bond simulator – this is a George Smiley simulator where you are, essentially, a civil servant. Dealing with situations requires patience, and discretion - the big heavy assault and assassination options are last resorts, only to be used when much more painless options like smearing and ransacking have been exhausted – this is supposed to be a secret department, after all. You have to be able to

IN DEPTH



TINKER

■ Another day, another person who has come under our watchful eye. This civil servant's a little bit leaky, and while it seems minor it would be foolish not to take action.

TAILOR

■ These first options are all about info – get a van outside, put a tail on them, or rifle through their stuff. A smart way to kick things off, but it won't solve the problem.

SOLDIER

■ The heavy stuff – capture them, kill them, or blow them up. These are last resorts, as people will talk and PM's will get angry. In this case, it might be an overreaction.

SPY

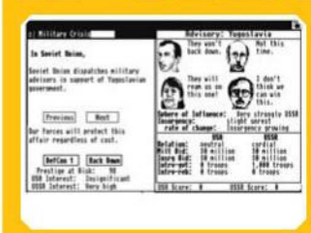
■ 'Dis-information' is very handy – a problem can often be solved by smearing it in the press, and it makes the government look good. It seems like the best bet here.

» Sadly for our director general, the HR department consists of a burly man who's good at pushing people through windows. Better luck next time.

see where the pieces are heading - there's no briefing at the start of the week to tell you just what's going to happen, and nor is there a fixed order – every new game of *Floor 13* shuffles the pack, encouraging multiple playthroughs.

There's very few games that can give you a sickly feeling in your stomach the way that *Floor 13* can. What you're doing is so innocuous, and yet so wrong and utterly against all the values of democracy. The black-and-white presentation only adds to it, because *Floor 13* employs no special tricks to try and buff the intrigue factor – it's as grey as an office brick, so much so that it goes all the way around to being utterly believable and addictive. This is the way democracy ends – not with a nuclear missile, but with a rubber stamp.

IF YOU LIKE THIS TRY...



BALANCE OF POWER - THE 1990 EDITION

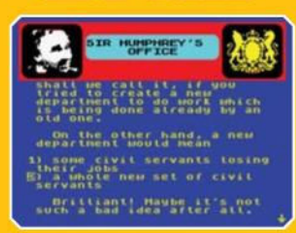
AMIGA

■ Chris Crawford's game is a classic of the cold war – an unending battle of brinkmanship where you try and push the other side to the edge without launching bombs. Finance coups everywhere you can, listen to your advisors, and don't expect rewards for your failure.

SHADOW PRESIDENT

DOS

■ Like *Balance Of Power*, but more in-depth – *Shadow President* is all about getting good approval ratings and not pissing off your advisors. You just know that the bomb is going to drop somewhere at some point, but so long as you're not there when it happens it'll go okay. A dark and powerful game.



YES, PRIME MINISTER

SPECTRUM

■ For a lighter governmental affair, this adaptation of the classic Britcom will do the trick. It's mostly a text-based game where you pick Hacker's response, but the writers got the tone of the show spot on, and there's lots of witty back and forth. Highly recommended if you're a fan of the show.

Minority Report

ULTIMATE SOCCER MANAGER

■ PUBLISHER: **IMPRESSIONS** ■ YEAR: **1995**

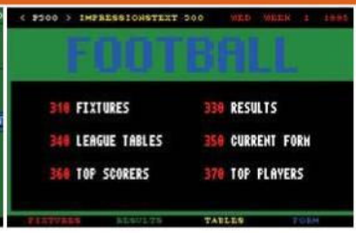
■ It feels odd to recommend a 20-year-old football management game, but *Ultimate Soccer Manager* is a special case – a game that obsesses over details in Molyneux-esque fashion, and allows you to do things that you cannot do in other footy games, before or since – making it something of an outlier in this tracksuit-based genre. There's no plot beyond getting your beloved team to the top of the league, and there's all the usual stats, injuries and match-day drama you'd expect from such a game, but some things are very different.

There's a sim element, where you can turn what was once a sodden patch of land into a thoroughly modern stadium – you can build roads, place programme stands, and hike up the price of the drinks at the bar. It's a great feature, allowing you to take a rest from the weekly grind of matches for a bit of *Sim Football Stadium*. Then there's the darker side, where you as the manager can be thoroughly corrupt – you can have a bet on your team's matches, try and rig a result in your favour, or offer a transfer target a sweetener to help seal the deal.

Being a dodgy dealer is quite hard, and being discovered will result in your sacking, but it's amazing that the options are there – and you probably shouldn't expect to see these features appearing in *Football Manager* anytime soon. There's also answering questions in the press years before anyone else did it, a Teletext display of all your results, and the ability to pull off your chairman's wig – along with all the regular footy goodness you could want. If you don't mind all the players being old and retired, this game is essential.

» It's our ground, complete with little ant-like footballers milling about.

» Kim, ever humble in her interviews is about to call the losing team "a pile of pants".



» After the match, you can relax in front of teletext and see how other teams got on.

MORE GAMES TO PLAY

» WEIRD DREAMS

■ DEVELOPER: **RAINBIRD SOFTWARE**
■ YEAR: **1988**

■ This early Amiga game consists of a series of side-scrolling vignettes that take place in the mind of someone going through lifesaving surgery. Every screen is filled with surreal sights and creations that'll pop your head if you get too close to them. A precursor to the likes of *Shadow Of The Beast*, this certainly isn't the best game to control but the experience is one you didn't usually get from games back then.

» NO SECOND PRIZE

■ DEVELOPER: **THALION**
■ YEAR: **1992**

■ If you've got the need for speed, then this is for you. Aside from having the best title ever for a racing game, *No Second Prize* allows you to get on your bike and race at speeds you never thought were possible on your A500, complete with all the early 3D polygons you can eat. The mouse-only controls can be a challenge to get used to, but once you do? You simply won't be able to get enough of this game's adrenaline rush.

» YO! JOE!

■ DEVELOPER: **SCIPIO**
■ YEAR: **1993**

■ Control Joe (presumably) as he jumps and hacks his way through various surroundings. A brilliant and thoroughly unheralded platformer with a nice difficulty curve and gloriously smooth animations, this is a game that, if it had been converted to consoles, would have done very well for itself indeed – but even the sheer Nineties-itude of it all wasn't enough for anyone to take notice. A game that shows off the A500 at its best.

» FOOTBALL GLORY

■ DEVELOPER: **CROTEAM**
■ YEAR: **1994**

■ Croteam's Sensi 'homage' may not be worthy of the 95 per cent it got in *CU Amiga* back in the day, but it adds a lot to a familiar game – volleys, bicycle kicks, comical aftertouch, streakers, and a power-hungry ref amongst other things. It doesn't play as well as *Sensi*, but it's a decent footy game that has a big smile on its face. What else would you expect from the same folks who gave you *Serious Sam* and *The Talos Principle*?

BASE JUMPERS

■ DEVELOPER: **RASPUTIN SOFTWARE** ■ YEAR: **1994**

■ Despite coming out in 1994, *Base Jumpers* is perfectly playable on the A500 and more than worth spending time with – it's a funny platformer where you and a friend have to make your way up a tower, avoiding enemies and making combos of three letters for points. You'll get more points and a message if the combo makes sense, e.g. KEV (good at football), FED (FBI bonus) and so forth.

The second half of the game is, of course, a base jump! You can collect even more bonuses along the way, and you can also push other players in the way of pipes and flags and the like, which will result in their death. A little out of place for a cutesy game, but that doesn't mean you shouldn't do it whenever you can. It's fun enough to play in single-player mode, but the two-player mode makes it a blast – you can fight to be the first up on the roof, and the first to make your way safely to the ground without losing your limbs.

A boatload of other minigames floating around makes *Base Jumpers* a nice party game – there are issues with the controls and scrolling that can be a problem, but it's so charming that they can be overlooked. If only it hadn't been released at a time when the Amiga was pretty much done and dusted, this game could've been a big hit.

» One of the many three letter bonuses you can grab. This one will add a "TAD" of points to the all-important score.

» Alas, the score doesn't mean a whole lot when you meet a sudden end at the hands of a drainpipe.

"A boatload of other minigames floating around makes Base Jumpers a nice party game"

RETRO STINKER

» NINJA GAIDEN II: THE DARK SWORD OF CHAOS

■ DEVELOPER: **GAMETEK** ■ YEAR: **1991**

■ A port of such low quality it has to be seen to be believed, *Ninja Gaiden II* on the Amiga maps the attack command to up and right on the Joystick. Amazingly, this is the least of this game's problems.

» ST. DRAGON

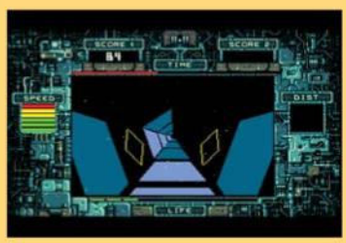
■ DEVELOPER: **STORM**
■ YEAR: **1990**

■ A highly challenging and well-turned-out horizontal shoot-'em-up, the Amiga's *St. Dragon* is by far the best way to play this largely-forgotten arcade game in the home. Shots and enemies come at you thick and fast, and often the dragon's segmented tail, carefully positioned in front of you, is the only thing that'll stop their assault. This is a game that demands constant engagement, and it's a corker of a conversion.

» HILL STREET BLUES

■ DEVELOPER: **KRISALIS**
■ YEAR: **1991**

■ A strange yet obvious use for a licence, *Hill Street Blues* allows you to manage your own police force! Take a bird's-eye view of the city streets and send all of your favourite cops to deal with various crimes while getting familiar with proper codes and procedure. The interface can be somewhat baffling, but it's a nice companion piece to *Police Quest*. And yes, Sgt Esterhaus does say,"Let's be careful out there."



» PSYBORG

■ DEVELOPER: **LORICIELS**
■ YEAR: **1992**

■ Even with the likes of *No Second Prize* kicking around, this could be the Amiga's speed king – a frenetic tunnel racer where you have to constantly move from line to line while travelling at warp speed, with tight controls and face-ripping sounds. *Psyborg* has the feel of a classic arcade vector game, and if you're fond of the likes of *S.T.U.N. Runner* and *SkyRoads* then this will blow your mind – an essential game for everybody.

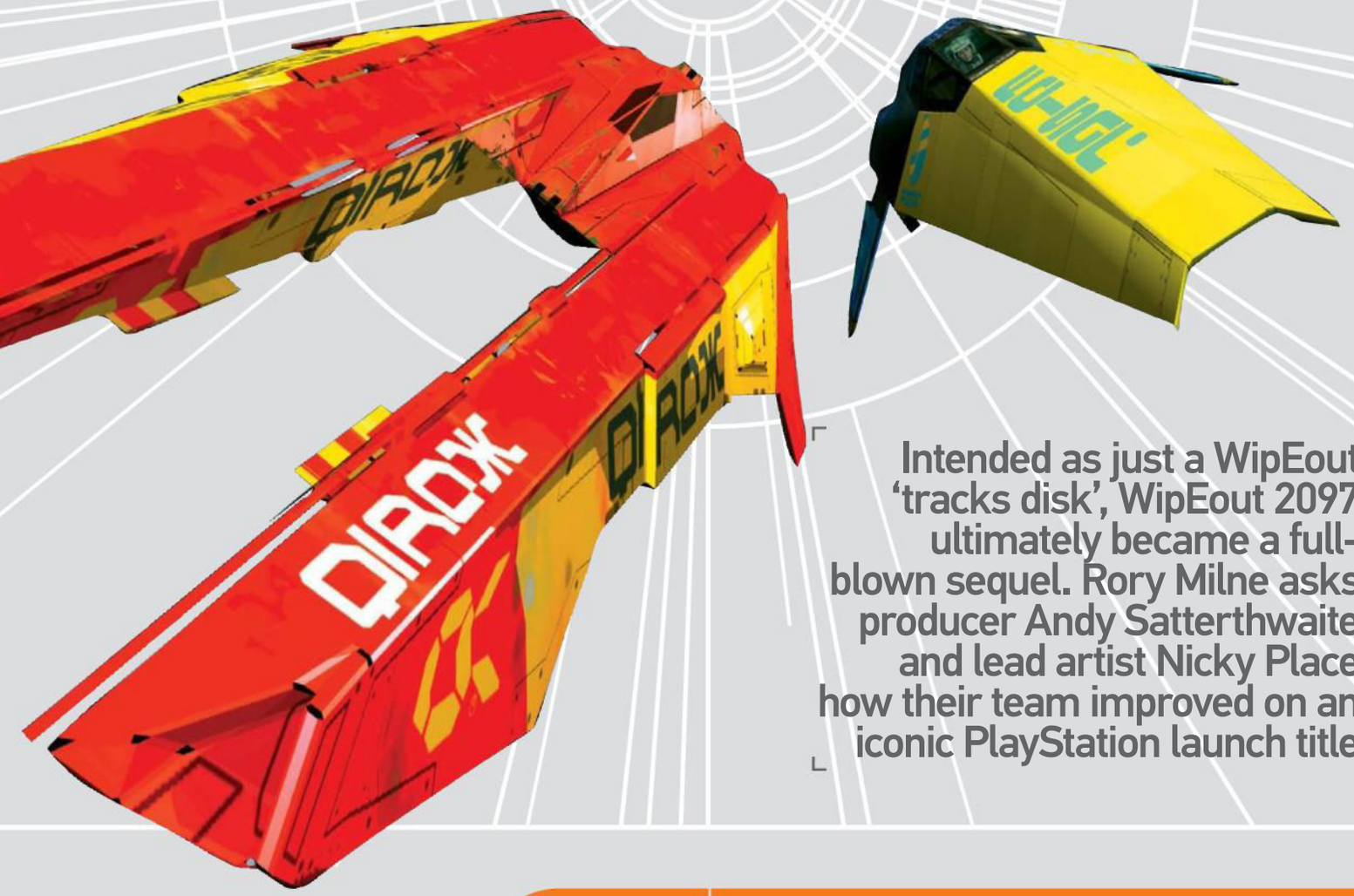
» SHUFFLEPUCK CAFÉ

■ DEVELOPER: **BRØDERBUND**
■ YEAR: **1988**

■ In these days when a good arcade is ever harder to find, it can be a challenge to find a decent game of air hockey. If you don't have a table close by, then Brøderbund's sim is a good way of playing – it's fast and furious, and features a whole load of strange creatures for you to battle against. As long as you resist the urge to chuck your mouse through the monitor when you lose, this'll be a treat.

メイキング

WipEout



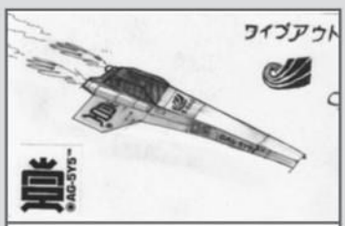
Intended as just a WipEout 'tracks disk', WipEout 2097 ultimately became a full-blown sequel. Rory Milne asks producer Andy Satterthwaite and lead artist Nicky Place how their team improved on an iconic PlayStation launch title

"WipEout 2097"

The impact of the original *WipEout* on the general perception of gaming can't be understated. With *WipEout*'s release, seemingly overnight, gaming grew up and became cool, it had shook off its geeky image and went mainstream. What is perhaps less well-documented, however, is the effect that Psygnosis' title had on the young game developers of the time. And in Andy Satterthwaite's case, *WipEout* was an influence on the then-youthful Psygnosis coder even before its launch. In fact, Andy describes his first exposure to the stylish racer as something close to love at first sight. "I was employed as a junior coder at Psygnosis in 1994. At about the same time, the company was working on a game for the PlayStation – [then] called the PSX. This was all very 'secret project', but I'd sneak over to play early versions of *WipEout* whenever I could. I remember the first time I saw it, it was just a checkerboard track sweeping through the sky. I've had a love of *WipEout* ever since."

Although Andy was restricted to admiring rather than contributing to the PlayStation launch title, he did subsequently work on the DOS version of *WipEout*, but the experience caused the young programmer to reassess his career options. "*WipEout* [on] PC was just the title I was assigned to as a programmer – more coincidence than anything. However, at the time, Psygnosis didn't have producers on its internal titles, rather the lead programmer would take those responsibilities. Our lead coder wasn't necessarily the best at this – though he was a very good programmer – and I stepped in on a few occasions making decisions that were probably way above my pay grade. Somehow this must have been noticed by someone, because towards the end of that conversion I was approached by one of the senior producers in the studio suggesting that I apply for one of the new 'internal producer' roles they were hiring for. For me this was a complete no-brainer, it was quite apparent that my coding skills were not up to the standard of those around me, but if I could help organise something then that would be brilliant. During my interview, I begged and pleaded to be given the sequel to *WipEout* – if it happened. I apparently did a good line in begging and pleading."

Given hindsight, a *WipEout* sequel seems like an obvious title for Psygnosis to have commissioned. But at the time of Andy's interview it wasn't clear how successful the game would be, and even after his promotion, Andy found himself producing an expansion disk for *WipEout* rather than a follow-up. "I believe the success of the original *WipEout* came as a bit of a surprise to the Psygnosis/Sony executives. No sequel had been planned prior to its release. In addition, the majority of the original development team had left to form their own studio, and so the company was left with the need to produce a sequel with no time and no team. The directive was just to produce a 'tracks ▶



» A cool early sketch of the AG Systems ship. There are five teams in the game, with Piranha being secret.

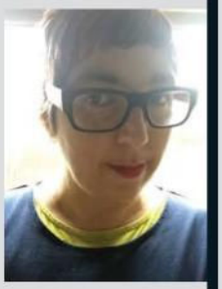
»Just visible on the North American Spilskinanke track is a waving cat, signifying luck.

© 1996 The copyright in the design is owned by Ian Anderson / The Designers Republic exclusively licensed to Psygnosis.

PIRHANA

WIPEOUT 2097 101

■ The sequel to the future racer *WipEout, 2097* improves and expands on every area of the original. In *2097*, scraping course edges causes slow-downs rather than full-stops, and weapons damage and destroy competitor ships. *2097* also has a smoother difficulty curve, more teams, courses and weapons, and more acts on its soundtrack.



»Nicky Place is a co-founder of the award-winning graphic design agency, Build.

disk' – basically an expansion set to the original. The title was *WipEout 2097* in Europe because we didn't want to imply it was a full sequel. It was *WipEout XL* in the US because – apologies to all US citizens – someone at Psygnosis [was] determined that the US audience wouldn't understand the idea of 100 years in the future in the title and would question where the previous 2096 games were. The original proposed title for the US was *WipEout XS – Excess* – but I pointed out that this could be interpreted as 'extra small' and thus wasn't ideal!"

Beyond considering what to call his *WipEout* expansion, Andy also had overall responsibly for delivering the game with a team that included developers of the original *WipEout* and Psygnosis new starters. "As the new producer I was given a team: myself, Nick Burcombe – part time, three coders – two new to the studio, and six artists – including Nicky Westcott, who'd been one of the leads on the original."

In order to define the look of *WipEout 2097*, lead artist Nicky Westcott – now Nicky Place – drew inspiration from a range of eclectic sources, but Nicky remembers the original *WipEout* providing her team with their starting point. "The look was very much set by the original game, which was the brainchild of Jim Bowers – creative concept – and Nick Burcombe – game design. There is an big influence of Japanese culture that stemmed from our working so closely with The Designers Republic – more so than on the previous game. There is a huge mash up of influence in there: *Akira*, Japanese pop culture, Ken Ishii, British techno, British industrial and urban landscapes, *Blade Runner* and input via tDR's aesthetic – all forged around the original bones of the *WipEout* concept."

The approach taken by Nicky's team when designing the ships that would compete in *WipEout 2097*'s highly-stylised world was to build on concept artist Jim Bowers' *WipEout* designs, which as Nicky explains involved a variety of techniques. "The original ships were Jim's babies, the team names and pilots were Nick's. We built on these to develop new designs for *WipEout 2097*. Jim had made an amazing scale model of one of the ships, I think to help pitch the original idea – it was really the blueprint for everything else. It was down to the individual artists as to how the concepts were developed – they developed a mix of concept sketches or worked directly in the software, it was down to them."

While the production of *WipEout 2097*'s ships was largely down to Nicky and her artists, she shares credit for the creation of the game's courses with the title's designers and coders. "Building the circuits was very much an organic process – Nick and his team would develop initial ideas and plans, but it was left to the artists to create something that 'worked.' So we would build the tracks based on the plans, and create a 'flow' that felt natural, but we'd also create tricky turns to navigate and master. We had really fantastic in-house coders who wrote custom tools within Softimage to create these really easily, and they were really happy to refine [them] as we needed. We were able to tweak and change tracks to adjust the difficulty, or easily put in place huge leaps across chasms. The tracks were tested and tweaked – and then some – to make them as close to perfect as the designers wanted them. Everyone would play each others' tracks and give feedback, so in that way it was a group effort."

> **"I believe the success of WipEout came as a surprise to the Psygnosis/Sony executives. No sequel had been planned prior to its release"**
> Andy Satterthwaite

WIPEOUT 2097 REMIXED

A rundown of the WipEout 2097 ports

SATURN

■ Compromises were made when adapting *WipEout 2097* for the Saturn, and as a result it lacks the flair of the original. Most noticeably, it has blockier graphics and radically simplified visual effects. It also runs slightly slower and features none of the licensed acts found on the PlayStation version of *2097*'s soundtrack.

PC

■ A faithful port that runs at a higher resolution than that of its PlayStation counterpart. But as with the Saturn version, the PC *WipEout 2097*'s soundtrack is exclusively by Psygnosis in-house musician Tim Wright rather than featuring the illustrious Techno artists who helped give the original game so much of its cool.

MAC AND AMIGA

■ These late arrivals received near polar-opposite receptions. The Amiga *WipEout 2097* was the first commercial 3D-accelerated Amiga title and was lauded for its advanced visuals and effects, while the 2002-released Mac *WipEout 2097* was criticised for being outdated, buggy and not supporting some controllers.

» A poorly placed racer tries to gain ground on the rainforest-located Valparaiso course.

As work progressed on *WipEout 2097*'s courses, producer Andy Satterthwaite set deadlines and calculated timescales, which resulted in him concluding that he could deliver more than the simple 'tracks disk' that he had been asked to produce. "The process for building tracks for the original was fairly well-defined. Nick Burcombe would design them on paper, the artists would make the tracks themselves in Softimage, it would be refined through playtests and then it would be 'skinned' to make the scenery. The 'skinning' process took about two man-months per track. We had to get the game out by October. Given our knowledge of the time-scale that things took, scheduling was pretty easy. We started at the beginning of January with one month to design and build 20 tracks, and then pick the best eight. Four track scenery artists, two tracks per artist and two months per track meant that all our 'track-skinning' should be finished by the start of June. Four weeks alpha, plus four weeks beta plus six weeks submission and manufacture equalled an October release. So that was the plan, except, what was I doing with the three coders in this time? It seemed foolish not to use them to make the game a heap better."

The combination of *WipEout 2097*'s tight deadline and Andy's sheer ambition resulted in pressure being placed on the game's developers, but rather than flounder they thrived, which lead artist Nicky attributes to focus and experience. "I think the deadline was purely down to marketing! The first game had been immensely successful and I think the deadline for *2097* was driven by a decision to capitalise on that. There was no denying it was pressured, but that pressure created a focus in the team and a desire to get things done and move on to the next thing. The team from the original formed the core of the newly expanded *WipEout 2097* team so we had developed a pretty good workflow by then."

THE DESIGNERS REPUBLIC Q&A

tDR's Ian Anderson on styling WipEout 2097

How did you originally become involved with Psygnosis/Studio Liverpool?
We were approached by *WipEout*'s author Nick Burcombe. When imagining the *WipEout* world, he was influenced by tDR's graphics so it was a natural move to ask us to realise his version of our vision. From supplying existing and creating new work for use in-game it was a logical progression to work with Sue Campbell on the packaging and brand development of the game.

Did they have specific ideas for *WipEout 2097*'s design or was it more collaborative?
WipEout 2097 is a consolidation and evolution of the visual language developed for the original game, based on the narrative positions set around 40 years on from *WipEout* itself. As we'd been given carte blanche to visualise the world in which *WipEout* existed, there was no need for anything more than cursory collaboration on *WipEout 2097* beyond synchronising the narrative.

How long did it take to create the artwork for *WipEout 2097*?
We developed and experimented with ideas as and when we had the ideas. In terms of delivering specific design assets both in-game and out – as well as booklet art and merchandise – probably around two to three weeks, with additional time spent co-directing and delivering the press/promotional campaign.

What tools did you use to create the main cover art?
Brains. Computers. Persuasion.

How do you go about creating a sense of speed when drawing art?
There are existing conventions such as italicised and /or (time) stretched typography and what *Eye* magazine called 'Go Faster Stripes'. There's also a sense of immediacy in the way some of the elements are created.

Where did the inspiration for the various logos / design come from?
Each team logo was an imagined evolution from the identities developed for the original game – we researched how real-world corporate IDs in general had advanced over an equivalent real time period, and applied the results with some additional fast history styling to create the new team branding for *2097*.

What did you think of the game compared to the original?
We viewed it purely as a logical evolution from the first in terms of our input – a scientific solution creatively expressed. I saw the gameplay as a playground for what tDR could have fun doing, a more fully realised proposition with an improved cohesive narrative.

Why do you think the art style remains so popular with gamers?
It was designed to.

» A desperate racer deploys a Quake Disruptor on his nearest rival.

» A Feisar team racer leaves the starting grid of the Canadian Talon's Reach track.

MAKING GAMING 'COOL'

Andy Satterthwaite on launching WipEout 2097 with style

What are your memories of *WipEout 2097*'s UK launch at the hip nightclub, Cream?
I remember feeling completely out of my depth – I really wasn't a dance club guy. There were competition winners who'd won the chance to come to the launch and meet us. They wanted our autographs, which felt ridiculous because we didn't think of ourselves in that 'rock star' way. I think I just hung out by the bar until the Chemical Brothers came on, then danced a bit and went home drunk.

What was your involvement in the game's big Japanese launch?
I was flown out to Tokyo to do a press conference, largely consisting of playing the game on stage and answering questions through an interpreter. It was exciting and fun. I remember going to Akihabara to pick up Nintendo 64s to bring back – it was not yet released in the UK at the time – but it's all a bit vague!

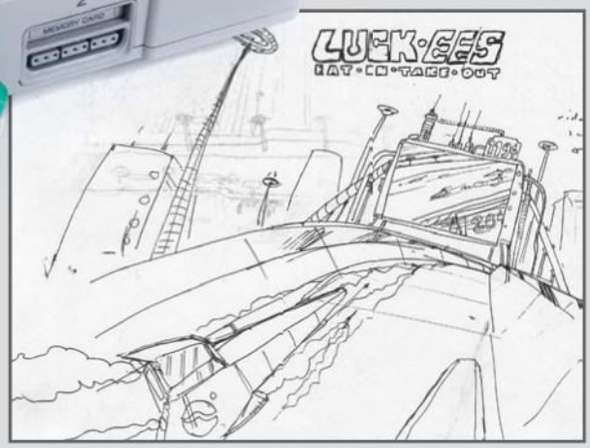
The ambition of the *WipEout 2097* developers matched their experience, and their equally ambitious producer, Andy Satterthwaite, recalls their push to expand on *WipEout*, designer Nick Burcombe's desire to improve the handling of the original game's ships and the creation of an iconic weapon by new-starter Chris Roberts. "The original game had four manufacturers of ships so we upped it to five, it had two ships per manufacturer in a race so we upped it to three. So we now had up to 15 ships in a race. It had two classes of race speed, so we upped it to four. But the bulk of the improvements were based on Nick's designs for all the things he wanted to improve in the original – largely around handling – and the weapon improvements that Chris Roberts – one of the new coders – came up with, including the legendary 'Quake' weapon, which originated when he was messing around with the track generation code to see how it worked."

A slew of imaginative weapons and power-ups followed, which lead artist Nicky Place puts down to cross-discipline collaboration. "I remember this being an organic process – the designers would outline what they wanted in terms of what it would do, and how it should behave, and then how it should sit on the track or in the environment – the artists, and programmers, would then work to make it 'real'. There wasn't really a set way to do anything, it was a genuine collaboration across design, art and coding with much of it driven by the short deadline – which meant we were making decisions and refining techniques as we went along."

A key difference between *WipEout 2097*'s weapons and its predecessor's would be their ability to inflict damage or destroy other ships, which producer Andy Satterthwaite views as a natural progression. "This was one of the evolutions of the design that Nick wanted. It was an obvious step and made more difference between the vehicles – as you could have stronger, slower ones and faster, weaker ones. [And] if you could shoot them then you could destroy them… it seemed obvious. To be honest, the pit lanes were a bit crap, and the solution employed by one of the later *WipEout* sequels, where you could reabsorb a weapon to heal, rather than fire it, was far more elegant."

» A giant, static airship hovers silently over two competitors tackling an unforgivingly tight bend.

In terms of gameplay differences, none would have more effect than addressing *WipEout*'s punishing track edges, which brought ships to a standstill when flown into. But as Andy reveals, these were far from simple to correct. "Fixing this was our most-desired change for the gameplay. The 'insta-stop' of the original was far too punishing, we wanted to have 'scraping' instead. Part



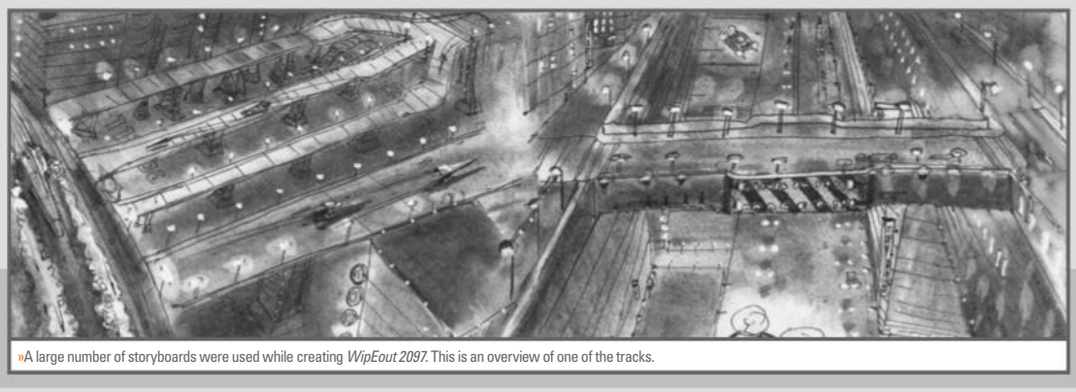
of the problem was that *WipEout* ships are largely triangular; so that when they clipped the sides of the track the natural reaction was that they rotated toward the wall. We had to compensate for that by pushing the nose of the vehicle out enough to make it not constantly collide but not so much as to push the player back into the centre of the track. For some reason it took far longer to get right than it should have done. I seem to remember losing my cool with Nick when he'd failed to mention some edge-case problem and we were running out of time pretty rapidly. Thankfully, Dave Rose, who was head of code at this point – I think – had been one of the programmers on *WipEout*, came to the rescue and fixed it. Once it was working as intended it made all the difference."

Another gameplay tweak saw *WipEout 2097* receive a greater number of AI racers than the original, who, as Andy points out, demonstrated better lane discipline. "The extra competitors were largely a numbers game; up the number to increase the competition. The game was a moving obstacle course, so having more obstacles made it more entertaining. I don't remember us specifically improving the collision detection between vehicles, but it's possible we did improve the collision between AI racers and the track. In the original, the opponents would happily fly through the scenery!"

Time and effort was also spent on developing *WipEout 2097*'s modes, with the game's Time Trial mode and Link mode standing out most in Andy's memory for quite different reasons. "Only the European version of *WipEout 2097* had ghost vehicles in Time Trial because Atari had a patent on ghost vehicles at the time from *Hard Drivin'*, but it was only a US patent. The Link mode was a specific request from Sony – as I recall. It was a huge pain because we had to keep everything in sync for it to work, which meant the game could never frame out. As the US / NTSC version of the game had to run at 30fps – as opposed to the 25fps of the PAL / European version – this proved one of the toughest challenges. I don't think it was worth it from a user perspective – I believe only about 1,000 link cables were sold in the UK, for example. But it was good for reviews; *Official PlayStation Magazine* gave us 9/10 in their review – but 10/10 with the Link mode."

> **"[Checkpoints] prevented a new player taking forever. You could reduce frustration by booting the player out and getting them to start again"**
> Andy Satterthwaite

Equal consideration was given to the game's five ship types, with each given unique handling and a different top speed, which would then be increased or decreased depending on the racing class chosen pre-game, but Andy doesn't remember this causing too many headaches. "Tweaking the vehicles was pretty easy. The challenges were: 1) making all vehicles feel different and still worth it within a class – we wanted to make it possible to win in all of them making the choice of manufacturer more of a personal preference, though in reality you either went for Feisar for easy handling or Piranha for speed; everything else was pretty pointless. I think Nick preferred Qirex 'cause he's a masochist! And 2) making the AI vehicles work at the different classes ... this is where Rob Francis came in. Nick was off designing another game at this point, so Rob came



»A large number of storyboards were used while creating *WipEout 2097*. This is an overview of one of the tracks.

IN THE KNOW

- **» PUBLISHER:** Psygnosis/Sony
- **» DEVELOPER:** Psygnosis
- **» RELEASED:** 1996
- **» PLATFORM:** Various
- **» GENRE:** Racer

DEVELOPER HIGHLIGHTS

WIPEOUT (PICTURED)
SYSTEM: Various
YEAR: 1995

DESTRUCTION DERBY 2
SYSTEM: PlayStation, PC
YEAR: 1996

FORMULA 1 97
SYSTEM: PlayStation, PC
YEAR: 1997

AURICOM

THE TRACKS OF WIPEOUT 2097

A course-by-course tour of WipEout 2097's world

1 TALON'S REACH Canada

Located in a dimly-lit industrial complex, Canada's Talon's Reach is a misshapen circular track surrounded on all sides by concrete, steel girders and exposed cabling. As *WipEout 2097*'s easiest course, Talon's Reach serves as a learning exercise for rookie racers in the art of air braking around corners.

2 SAGARMATHA Nepal

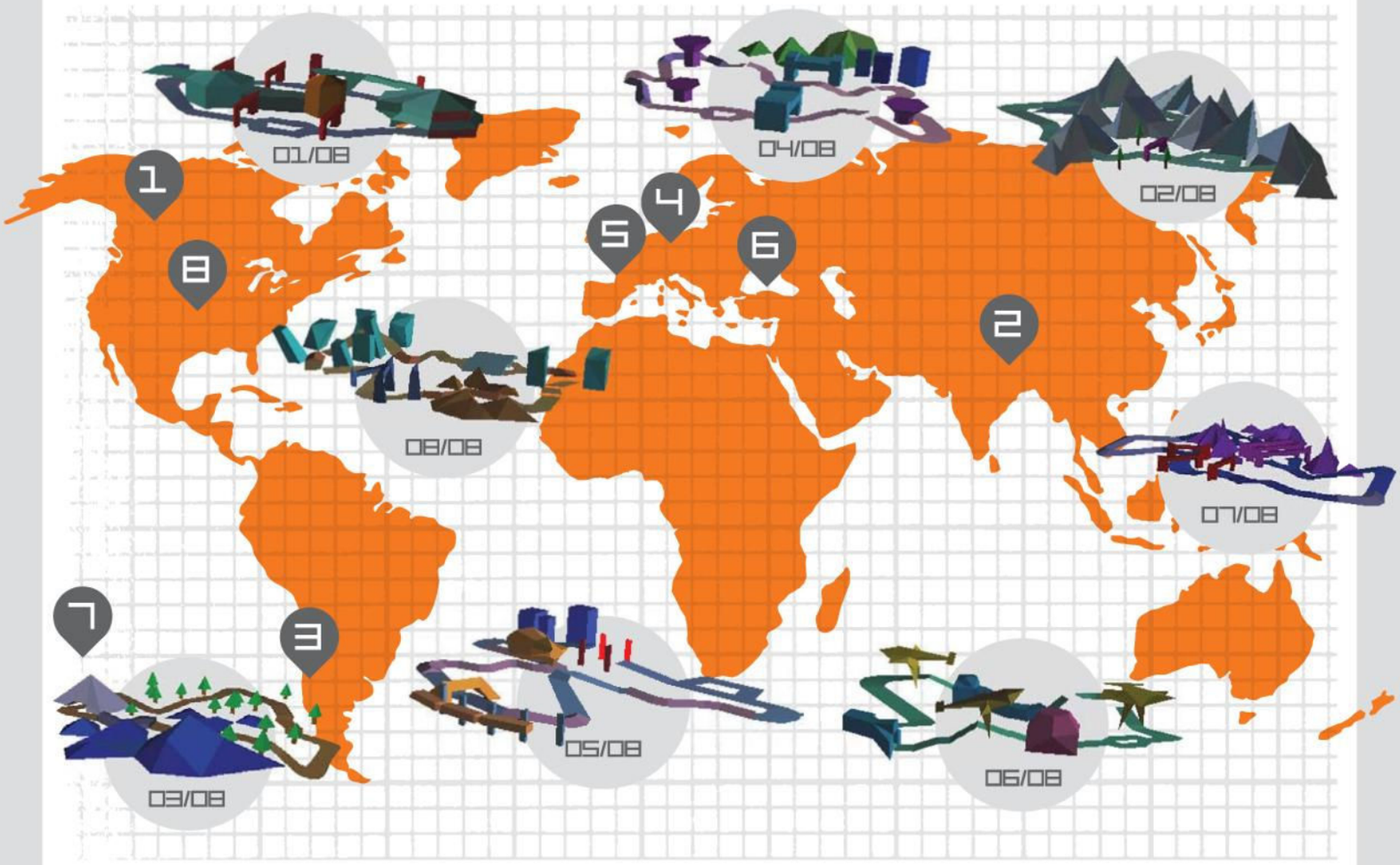
The snowy Nepalese mountaintop of Sagarmatha – better known in the West as Mount Everest – plays host to *WipEout 2097*'s second beginner track. A 'S' bend greets racers not far from the start and several tight bends follow. Sagarmatha also introduces racers to darkened tunnel flythroughs.

3 VALPARAISO Chile

Somewhat controversially sited in the South American rainforests of Chile, Valparaiso is the first of *WipEout 2097*'s intermediate courses. Boasting a tricky series of bends and a temple flythrough that gives very little room for error, Valparaiso provides *WipEout 2097* with its steepest difficulty curve.

4 PHENITIA PARK Germany

Built on the outskirts of Hamburg in a polluted business district, *WipEout 2097*'s other intermediate track, Phenitia Park, demands a different skillset to its counterpart Valparaiso. The course is defined by its uphill chicanes and jumps that require high speeds and perfect positioning to clear.



5 GARE D'EUROPA France

An abandoned metro line provides the backdrop for *WipEout 2097*'s atmospheric Gare d'Europa course. The first track of the game's third difficulty tier, Gare d'Europa crushes racers who don't learn its every twist and turn. Its showcase section rockets racers from a high tower down to the ground.

6 ODESSA KEYS Black Sea, Ukraine

Suspended over the Black Sea, the Ukrainian Odessa Keys track fulfils its third-level difficulty status by demanding split-second reactions from racers. 'S' bends that snake through neon-lit tunnels, jumps into near darkness and corkscrew ascents uphill provide some of Odessa Keys' more demanding challenges.

7 VOSTOK ISLAND Pacific Ocean

Based on a dormant volcano in the South Pacific, the experts-only Vostok Island course throws racers at a double figure of eight, over collapsed bridges and into an epic tunnel run. Although these hazards can be mastered, the brief countdowns between Vostok Island's checkpoints cut short all but perfect laps.

8 SPILSKINANKE America

The ultimate challenge offered by *WipEout 2097*, the fiendish Spilskinanke track runs through the broken remnants of an earthquake-stricken American city. Spilskinanke incorporates a twisted run through a dank sewer, a 90° bridge jump and a hairpin bend passing under a golden bridge.

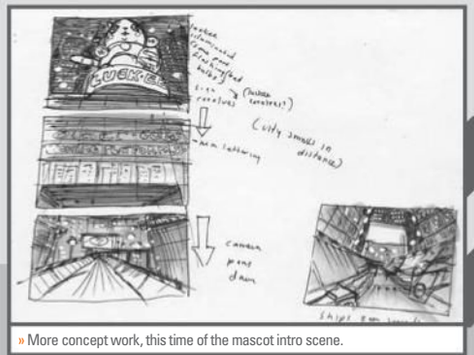
on and tweaked and tweaked and tweaked. We had to make it so that every racetrack at every class was a meaningful challenge with every manufacturers' vehicle. It took Rob months of work playing and replaying and rebalancing the AI to get this right. I still don't think I ever completed the Phantom class, but I do know it's possible – in theory!"

The basic mechanics underpinning *WipEout 2097* were also worked on, with perhaps the biggest departure from the original game coming in the form of checkpoints, which Andy hoped would help reduce frustration. "Checkpoints offered a few things: an arcade feel, a bit of extra pressure and they allowed us to display split times on the HUD. They prevented a new player taking forever when they were losing. With a checkpoint system you could reduce frustration by booting the player out and getting them to start again."

Given how crucial *WipEout*'s music had been to its success, an effort was put into securing top acts for *WipEout 2097*'s techno soundtrack. Andy regards this aspect of the game's production as yet another organic progression, "The music was a natural evolution of the work that had been done on the original – and again it was marketing working with the record label. The big push was the inclusion of *Firestarter* by the Prodigy, which came in late in the piece – but that was driven by Nick Burcombe rather than me."

Despite its strict deadline, the *WipEout 2097* team also found time to include a wealth of hidden content, such as faster modes, tougher tracks and an advanced prototype ship unlocked by winning races. They also created crazy weapons and vehicles that could be unlocked with the controller buttons. Lead artist Nicky Place chalks the extra content up to enthusiasm and stress release. "People would just come up with these ideas [that ranged] from really cool to pretty nuts and would build stuff as a bit of a respite from the pressure of the day-to-day – it was great, as everyone was up for getting this extra stuff in the game, despite it being extra work, everyone was just so into it. It was a period of great energy and immense exhaustion at the same time – it was just a lot of fun."

While fully endorsing these hidden extras, producer Andy did have one heart-stopping moment thanks to their inclusion as the completed *WipEout 2097* was presented to Sony. "Their purpose was to give the players something to work toward. The secret ships – alien, flying pig, etc. – and the other stuff was good nonsense to throw in at the end, though the minigun



» More concept work, this time of the mascot intro scene.

» Full acceleration and careful positioning are required to successfully make this hazardous jump.

nearly killed the game due to a last moment bug as we were submitting for Sony approval."

Following its approval, *WipEout 2097* launched to great critical acclaim and impressive sales numbers, for which Andy remembers receiving the thanks of both Psygnosis and Sony. "We sold about a million copies, so they must have been pretty happy – and I was given plenty of praise. They certainly made enough other sequels so it must have been worth it at some level!"

Subsequently, gaming pods loaded with *WipEout 2097* were installed in Cream – the very coolest of techno clubs. An arrangement Andy perceived as entirely reciprocal. "I think it was a mutual embrace – the game embraced the music, the music embraced the game, it was all fast and exciting, and new and flashy, and looked good on big TV screens."

Looking back at *WipEout 2097* now, lead artist Nicky views her work not only in terms of its cultural impact, but also its crossover appeal. "I still think it looks amazing as a whole entity. Technically it has obviously been way, way surpassed by new technologies, but I believe it's really stood the test of time as a cultural piece. I also created the *2097* intro with Jim Bowers and I still think it looks incredible. I'm hugely proud to have been part of such an exciting and culturally important piece – I meet people all the time who tell me how it was their favourite game, or it got them into dance music, or into games, or a multitude of things – it's just been so influential."

When asked to review his first production, Andy relives the spectrum of emotions he felt while guiding *WipEout 2097*'s development and finishes on a note as upbeat as any on the game's soundtrack. "With hindsight, it was ridiculously stressful, stupidly fun and very simple all at the same time. I had an amazing team, a product I loved, a very understanding fiancé and a very understated goal to make a 'tracks disk', which just gave us every chance to excel expectations. I still have people asking about it now, so how can I not be proud of it? But really it was a product of a fantastic team working bloody hard on a product we believed in with minimal management interference – if you've got that you can do anything."

Many thanks to Andy Satterthwaite and Nicky Place for revisiting *WipEout 2097*.

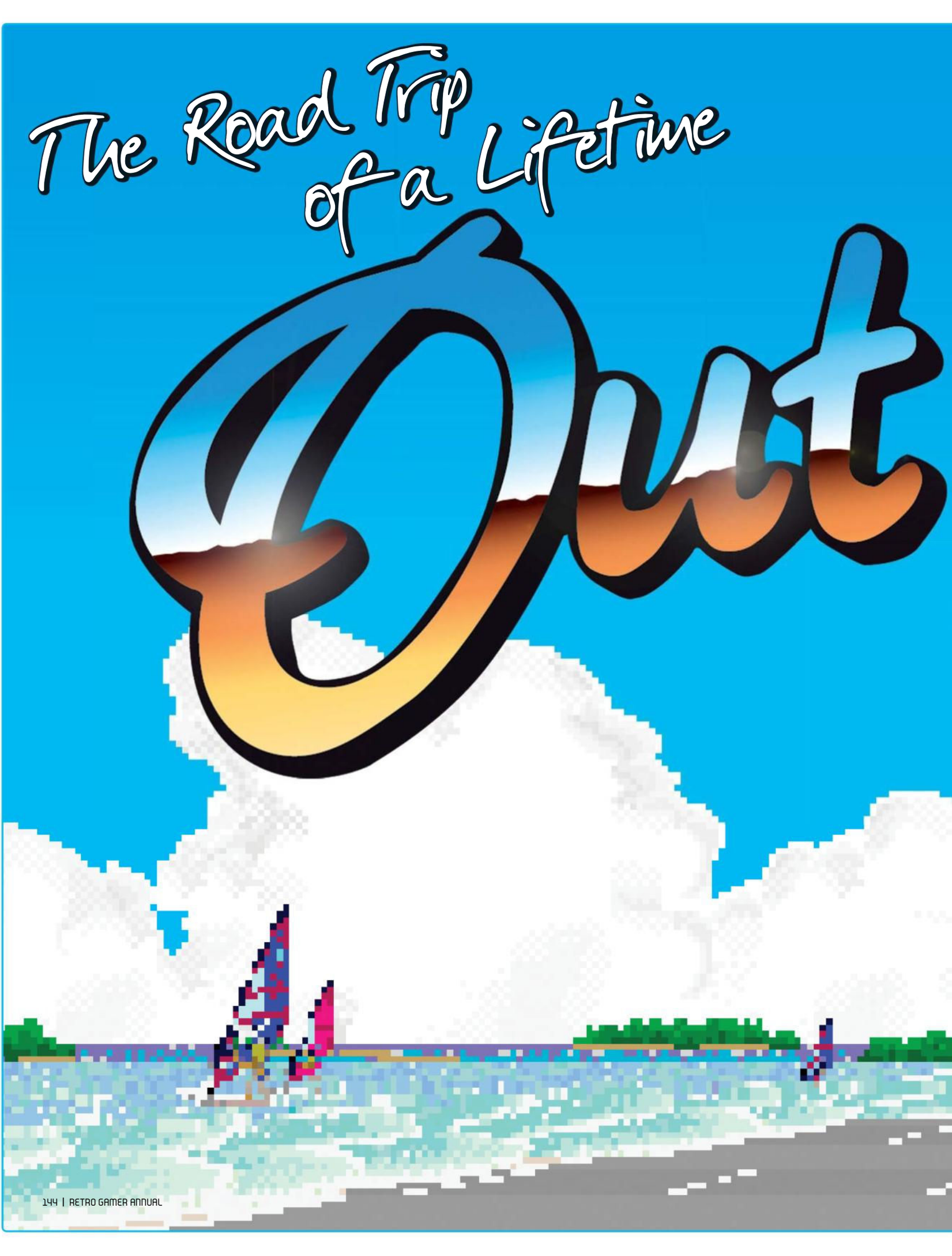
"We would build the tracks based on the plans, and create a 'flow' that felt natural, but also create tricky turns to navigate and master"

Nicky Place

»A golden bridge spans the first of several tight chicanes facing a pair of competitors.

The Road Trip of a Lifetime

Out

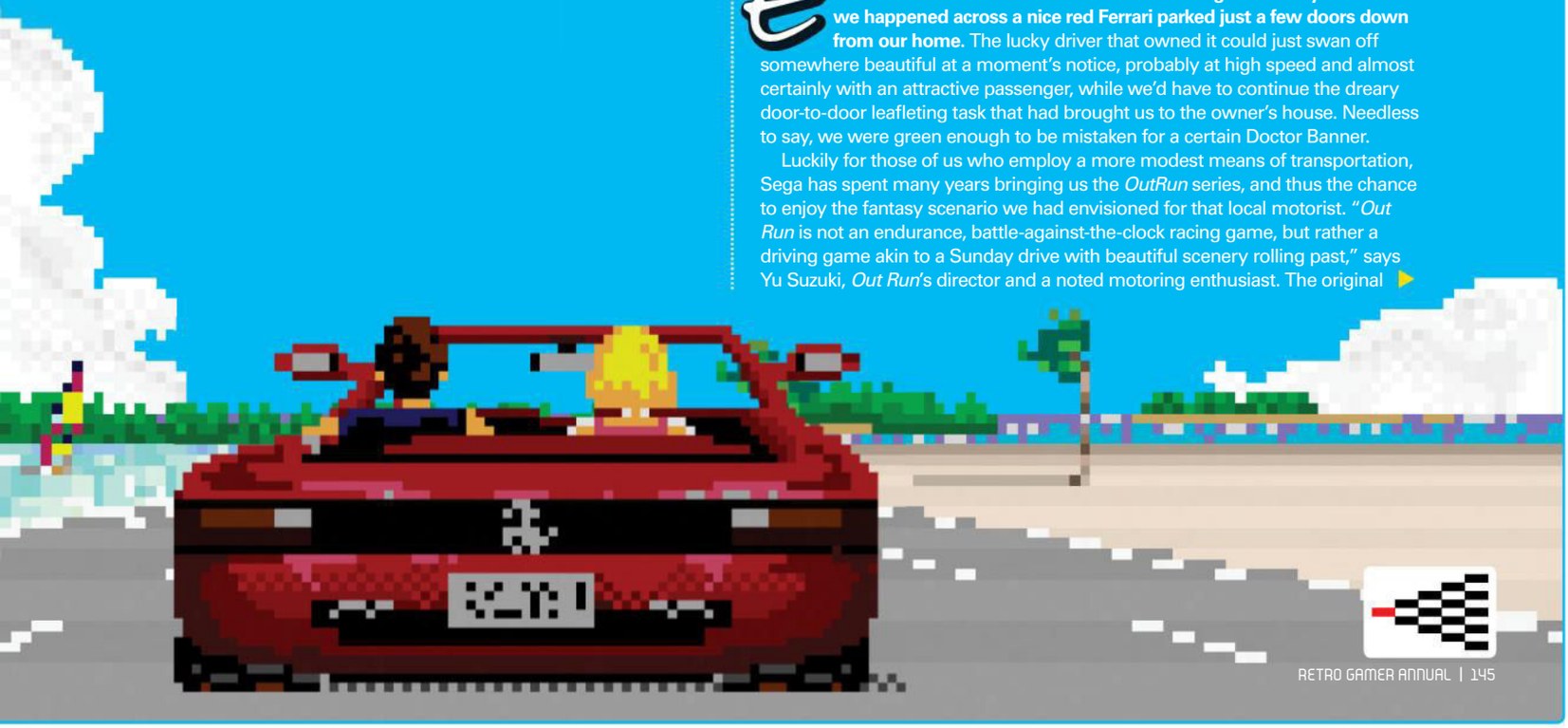


Run

For decades, Sega's iconic racing series has delivered on a fantasy only seen in car adverts – high speeds, beautiful scenery and an equally lovely companion. Nick Thorpe is in the driver's seat for this tear down memory lane…

Envy is not a pretty thing, but we've never claimed to be flawlessly beautiful – and we're not sure we've ever felt greater envy than when we happened across a nice red Ferrari parked just a few doors down from our home. The lucky driver that owned it could just swan off somewhere beautiful at a moment's notice, probably at high speed and almost certainly with an attractive passenger, while we'd have to continue the dreary door-to-door leafleting task that had brought us to the owner's house. Needless to say, we were green enough to be mistaken for a certain Doctor Banner.

Luckily for those of us who employ a more modest means of transportation, Sega has spent many years bringing us the *OutRun* series, and thus the chance to enjoy the fantasy scenario we had envisioned for that local motorist. "*Out Run* is not an endurance, battle-against-the-clock racing game, but rather a driving game akin to a Sunday drive with beautiful scenery rolling past," says Yu Suzuki, *Out Run*'s director and a noted motoring enthusiast. The original ▶



Out Run

» Police will try to ram you off the road and generally hinder your efforts in *Turbo OutRun*.

▶ inspiration for *Out Run* was *The Cannonball Run*, the 1981 comedy film depicting a cross-country race across the USA, but having been told that scenery in the US isn't tremendously varied Suzuki instead went to Europe.

"Doing research for the game, we rented a car in Frankfurt, and drove the Romantic Road (Romantische Straße), the French Riviera, through the Swiss Alps, Florence, and Rome to name a few stops along the way," recalls the veteran director. Some amusing incidents made it a journey to remember, too. "We stopped at Trevi Fountain along the way, where my superior says, 'Face away from the fountain, and we are going to throw our coins in at the same time. Got it?' So, okay, we did. I am guessing he saw it done in a movie one time, so he said we had to do it," Suzuki recalls. "I come to find out later on, when two people face away from the fountain and throw coins in at the same time, they are to be wed."

AM2 was at the forefront of arcade development throughout the Eighties and its two previous hits, *Hang-On* and *Space Harrier*, were both graphically impressive and housed in attention-grabbing cabinets. *Out Run* was given the same treatment – not only did it employ the same sprite-scaling technology as the previous games, the deluxe cabinet could sway left and right to give the sensation of movement. The result was that it was the kind of game that made an immediate impression. "I think it was probably the summer of 1987 and it was pretty mind-blowing for me," remembers Patrick Michael, head of research and development at Sega Amusements International. "I think it was my first experience of a moving cabinet and my first branching stage driving game. It was all about the summer, blue skies, great tunes, a convertible and a beautiful woman by your side."

Steve Lycett, designer on the Sumo Digital's conversion of *OutRun 2* and producer of *OutRun 2006: Coast 2 Coast*, was similarly impressed. "I'd already been blown away by *Space Harrier* (especially the deluxe hydraulic version!) so when I saw *Out Run*, which was even more impressive, and let you drive a Ferrari, how could I not fall in love? Of course back then I was rubbish at it, never touched the brake and just set gears to high, but even then, it was just fabulous soaking up the drive, the music and the scenery." Sean Millard, creative director at Sumo Digital and senior designer on the home version of *OutRun 2*, was also amazed by the hardware. "The sit-in cabinet was a exciting proposition and added to the thrill of the game. To then enjoy the game as much as I did and to find it so accessible, meant that it became my go-to arcade game."

Your objective in *Out Run* is to reach each checkpoint before the time limit expires. The only choice you have to make, save for picking your music at the beginning of the game, is which way to drive at junctions. Other than that, it's about driving fast and not crashing, and this simplicity was core

Did you know?

■ *Out Run* was originally designed to include motorbikes and oncoming vehicles amongst the traffic.

Team Picks

Everyone has an OutRun tune they swear by – here are our picks…

RISKY RIDE

■ As much as I love the various remixes of the original *Out Run* tunes on *OutRun 2006: Coast 2 Coast*, it's *Risky Ride* that really does it for me. The guitar work in it sounds amazing and it just makes me feel happy whenever I hear it. It's pretty much perfect and there's a rather stunning guitar remix, too.

MAGICAL SOUND SHOWER

■ As much as I'd love to be a hipster and pick something obscure, I just can't – *MSS* is too good. The delayed kick-in also helps on a gameplay level, giving you an audio checkpoint by which you can eventually learn where you should be when that iconic melody drops.

PASSING BREEZE (1993)

■ This was probably my least-picked track in *Out Run*, but Takenobu Mitsuyoshi's remix for *OutRunners* foreshadows his *Daytona USA* work and brings it to the top of my playlist. There's something about the synth sound of early Nineties music that just works for me.

KEEP YOUR HEART

■ Maybe not an obvious choice, but this is always the one that gets stuck in my head whenever *OutRun* gets discussed in the team. Unfortunately you couldn't select the music in *Turbo OutRun*, but I was over the moon to see it included in *OutRun 2006: Coast 2 Coast*.

SPLASH WAVE

■ I spent an entire afternoon making an expansive tier list for *OutRun* tunes – it was a perfectly good use of my time, trust me – and, of course, *Splash Wave* reached number one. That intro and main riff knocks anything else out of the park, even *Magical Sound Shower*.

"It was probably the summer of 1987 and it was pretty mind-blowing for me"
Patrick Michael

to its appeal. "It was so accessible, bright and *fun*… it was way less intimidating than *Pole Position*," says Sean. "I remember watching an older kid playing it and using the gear to drop speeds for the first chicane by the beach huts and suddenly, there was a junction! I don't think I'd seen choice like that in a game before," Steve recalls. "Suddenly the course map on the machine made sense, you could go where you wanted!"

When asked what the hardest part of development was, Suzuki replied "To make the driving experience as fun as possible," which is a surprising admission about a game that is virtually synonymous with fun. "To achieve that, we widened the roads, and put a lot of work into the buildings and ground splatter to ramp up that feeling of going fast," he explains. "We also had the idea of putting in the radio to make it enjoyable. The key term here is 'superiority complex'."

Out Run was an *enormous* success for everyone involved. Sega sold 30,000 cabinets, making it the company's bestselling arcade game of the Eighties. When the home conversions arrived, despite failing to keep up with the technologically-advanced arcade game, they did similarly well. US Gold managed to shift over a quarter of a million 8-bit computer copies in time for Christmas in the UK alone, making it the bestselling game of the year. Sega and US Gold spent the next few years bringing *Out Run* to a variety of formats including

consoles and the 16-bit computers. Notable later conversions include the *Sega Ages* version on PlayStation 2, which includes polygonal graphics and a new Arrange mode with a diamond-shaped course and rival racers, and the 3DS version which includes stereoscopic 3D visuals and new music.

Even the best arcade games eventually see a drop in earnings, and while that process took a few years for *Out Run*, eventually a successor was needed. That need was fulfilled in 1989 by *Turbo OutRun*, a radical overhaul which could be installed as an upgrade kit in original cabinets. The core concept of driving a Ferrari with a beautiful woman as a passenger hadn't changed, but practically everything else had – starting with the location and format. Where the original game gave players the freedom to choose their route through a series of stages inspired by Europe, *Turbo OutRun* was a linear cross-country race across the USA.

Greater elements of danger and competition were added, in the form of police pursuits and a rival racer who could steal your girlfriend if he beat you to checkpoints. That wasn't all – on-track hazards such as barriers were there to impede your progress, and adverse weather conditions including rain and snow were included. To cope with all of this, your car – this time modelled on an F40 – could be upgraded, taking ▶

» Major crashes are a big part of *OutRun* history, often sending the car into the air.

» *Out Run 3-D* is now a sought-after rarity, due to its improvements over the original.

» Failing to reach a checkpoint ahead of your rival ensures your fickle companion will hop to his car.

Data Discs Interview

We talk to Jamie Crook to find out why Out Run's soundtrack has stood the test of time

When did you first hear *Out Run*'s music? What impression did it make on you?
Probably on the Mega Drive. I grew up in a small town in Devon, so we didn't have access to many arcade machines at the time. It wasn't until much later that I heard the arcade version, which is, of course, the superior one. I had a friend at University, about 14 years ago, who used to listen to the *Out Run* soundtrack on a Sony Walkman in between classes. He was always praising it, so I revisited it then, too. It never gets old.

The three main *Out Run* tracks have been remixed and arranged frequently over the years, and they always manage to remain relevant. What do you think gives them this timeless quality?
Hiroshi Kawaguchi is a clearly gifted composer who, despite working in an extremely restricted medium, produced something really special. The tracks are all well structured, with hooks in all the right places and memorable rhythms running underneath. It's just great songwriting. Simple as that.

What was *Out Run* doing differently to other games of the mid-Eighties in terms of its sound and music?
In the Eighties Sega was at the cutting edge in the arcades. Hiroshi Kawaguchi worked with their machines from really early on, which I think gave him an intricate understanding of the technology and its restraints from the outset. Beyond that, I think he also cared deeply about song structure and the pivotal role played by music within the game. It's clear there was a lot of thought put into the music in *Out Run*, which perhaps was missing from other games. The music was always designed to be fundamental to the experience, with each track having its own distinct flavour.

What drove you to release the *Out Run* soundtrack on vinyl?
It's a timeless soundtrack that can be enjoyed as a standalone album, irrespective of whether you're familiar with the game or not. It's just really good music.

***Magical Sound Shower*, *Passing Breeze* or *Splash Wave*? No cop-outs!**
Passing Breeze. That bass-line…

Look out for *OutRun* on vinyl this summer. More info at data-discs.com

Did you know?

■ The Dreamcast and 3DS versions of *Out Run* include a redrawn car sprite to avoid copyright infringement.

Out Run

on three new parts over the course of the game. What's more, a turbo button was added – perfect for pulling ahead of the rival or ramming through barriers. If *Out Run* resembled a car advert, *Turbo OutRun* was closer to an action film.

There was no question that *Turbo OutRun* was a good game, but whether or not it was a good sequel was a matter of personal taste, determined by how you saw the new mechanics. "I liked them; they felt like they added to the action without breaking anything," says Sean. "I wiled away many happy hours on my Amiga with *Turbo OutRun*." Not everybody was so enthusiastic about them, though. "To be honest, I always preferred the original game and its sense of freedom," says Steve. "What was refreshing about *Out Run* was more it was you versus the clock, the traffic was merely obstacles. *Turbo OutRun* felt like a step back, you lost the freedom, the police were a hindrance, the turbo charge, while fun to use, could land you in a lot of trouble and worse still, it rained!" Patrick feels similarly. "I can't say that I was a big fan, it added a lot of complexity with the turbo with the overheat mechanic and the upgrades system. For me the simplicity of the original was more enticing."

Between 1989 and 1991 three more home-exclusive *OutRun* games were devised, but if you were outside of Europe they probably passed you by. The first of these was *Out Run 3-D*, a rather good remixed Master System conversion of the original game with 3D glasses support, new graphics, revised stages and even three pretty good new tunes to pick from. The Master System was dead in Japan and the North American release was cancelled due to low 3D game sales, so it only hit Europe and Brazil. *Battle Out Run* was another Master System exclusive, and another oddity. Sega's Master System developers put together a game that was obviously heavily inspired by Taito's arcade hit, *Chase HQ*. In each of the eight US-based stages, players were tasked with chasing down upgrade trucks to trick out their car, then catching up to a criminal and ramming them off the road. It received a warm reception from the press in spring 1990, but players were advised to wait for the official conversion of *Chase HQ*.

Lastly there was *Out Run Europa*, which wasn't produced by Sega at all, but instead by US Gold. Having produced the home computer conversions of the two coin-op games, the publisher had secured an agreement to make a sequel of its own. Combat was once again a major element of the game, which cast you as a secret agent chasing down enemy spies in a cross-continental chase to Berlin. It was also the first *OutRun* game with different player vehicles. "Starting on a motorbike was all sorts of weird and wrong," Steve recalls, adding, "I'm sure you drive a Porsche at some point too." He's correct, and in fact the Ferrari only appears in the final stage. For the first and only time, players were able to race across the seas and could even fire weapons at enemies. The game launched in 1991 for Europe's major 8-bit and 16-bit computers, as well as the Master System and Game Gear – the latter version also making it to US shores. It received a mixed reception, with the Amiga and Master System versions being considered the best.

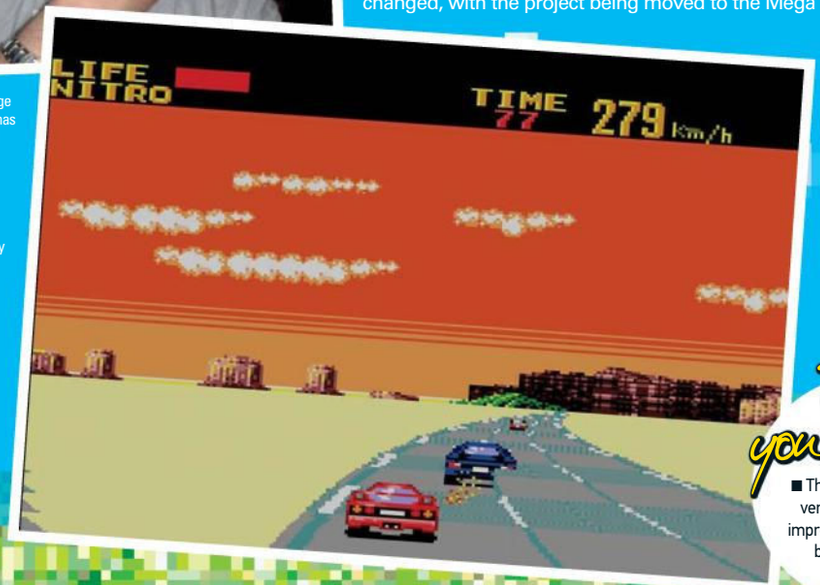
The last home-exclusive *OutRun* of the Nineties wasn't originally meant to be an *OutRun* game at all. Sega subsidiary SIMS was working with Hertz to create a futuristic racing game for the Mega-CD titled *Cyber Road*, but by mid-1992 plans had changed, with the project being moved to the Mega Drive and renamed *Junker's High*. Despite this, the game shared some commonalities with previous *OutRun* games – branching paths were in, and there was turbo boost mechanic. Perhaps for these reasons, Sega granted SIMS the use of the *OutRun* licence and picked the game up for export.

> **"To be honest, I always preferred the original game and its sense of freedom"**
> Steve Lycett

However, the game that became known as *OutRun 2019* was also a departure from previous entries in the series. For a start, bridges were a major part of gameplay – for the first time ever, you could fall off the road. Sometimes you'd harmlessly drop down to another road, but you could just as likely fall into a lake. What's more, the colour palette was pretty drab, taking the game further from the summer vibes the series was known for. The game ultimately proved divisive when it released in March 1993. "*OutRun 2019* was more true to the original in gameplay but the *F-Zero*-style theme just did not capture the same warm feeling," recalls Patrick. Critics offered sharply differing opinions – *GamesMaster* dismissed it as a "five-minute wonder" and awarded it a miserable 30%, while *Diehard GameFan* described it as "much better than the original" in a 77% review.

Fortunately, fans didn't have to wait long for another game to appear, as the third arcade *OutRun* game arrived just before the summer of 1993. *OutRunners* was developed by Sega's AM1 team, and returned to the traditional *OutRun* format of blue skies, branching roads and simple driving – the only concession to complexity was the addition of various cars with different transmission configurations, ranging from two to six gears. Even splitting the courses into two sets, the east and west routes, didn't matter much given that both shared quite a few stages. The biggest new

» Steve Lycett is a huge fan of the series and has been heavily involved with the later ports.



» *Battle Out Run* takes place across eight stages, but the differences are mostly cosmetic.

Did you know?

■ The Saturn and 3DS versions of *Out Run* improve on the original by doubling the frame-rate.

Did you know?

■ *Turbo OutRun*'s upgrade shop music uses the same melody as the shop music from *Fantasy Zone*.

The End Of The Road

If you have a favourite route, you might not know Out Run has an ending for each of its goals – and here's what happens in each of them

■ Having reached the end of the game's easiest route, our illustrious driver is hoisted aloft by a crowd of cheering spectators. Unfortunately, they're all easily distracted men. When a pretty lady stops by, they all stop to gawk at her and drop our man. Poor form, chaps.

■ Congratulations, you've driven a long way from home! Commiserations, your Ferrari has broken down. We're not sure where the nearest Ferrari repairer is, but we're guessing that it's nowhere near here. Oh, and it's the Eighties so you probably don't have a mobile phone.

■ What's most important about *Out Run* to you? If it's the female companionship, the middle route is where you want to be. Having been presented with a magic lamp, our driver receives his wish, which turns out to be a harem. Your passenger doesn't look best pleased with that.

■ Will this ending finally play it straight? It seems so, as someone wanders towards you with a trophy for your achievement – only to saunter straight past you and present the trophy to your female companion. Hang on a minute... was the steering wheel on the right, then?

■ For the master driver that reaches the most difficult of *Out Run*'s goals, there is no joke or calamity – you're presented with a well-deserved trophy for your, frankly, excellent driving. Now you've truly mastered the original *Out Run*, it's time to try one of the sequels...

OutRun

La Scuderia Rossa

OutRun has always been most closely linked with Ferrari – and here's every model featured in the series

250 GTO
Introduced: **1962**

Handling
Max Speed
Acceleration

365 GTS/4 Daytona
Introduced: **1971**

Handling
Max Speed
Acceleration

Dino 246 GTS
Introduced: **1972**

Handling
Max Speed
Acceleration

512 BB
Introduced: **1976**

Handling
Max Speed
Acceleration

Testarossa
Introduced: **1984**

Handling
Max Speed
Acceleration

288 GTO
Introduced: **1984**

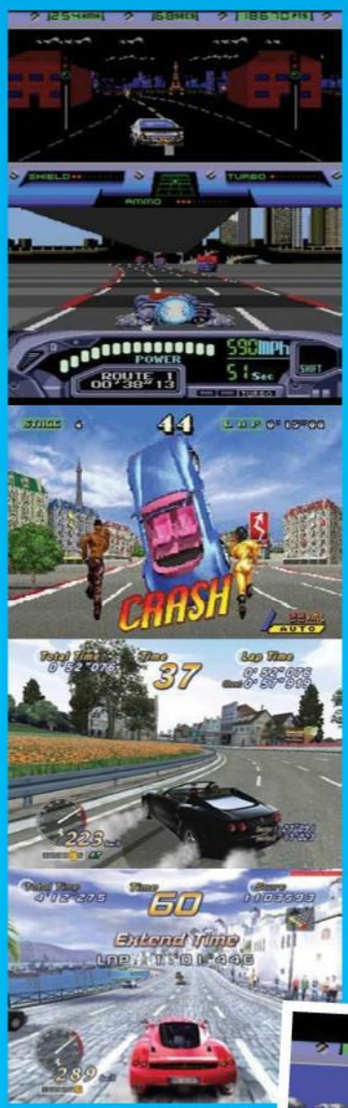
Handling
Max Speed
Acceleration

328 GTS
Introduced: **1985**

Handling
Max Speed
Acceleration

F40
Introduced: **1987**

Handling
Max Speed
Acceleration

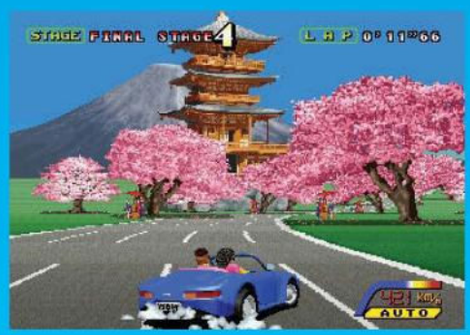


» US Gold's *Out Run Europa* was the first and only seafaring *OutRun* game. Many don't miss it…

feature that *OutRunners* brought to the series was easily the introduction of multiplayer racing. Depending on the number of linked cabinets, up to eight players could compete against each other with the race leader choosing the way at each checkpoint. To accommodate for the increased player traffic, the number of CPU-controlled vehicles was reduced from previous games.

Thanks to the power of the System 32 board, *OutRunners* proved to be the best-looking *OutRun* game yet, with amazingly smooth scaling and very detailed backdrops. The soundtrack featured the original music, revamped by Takenobu Mitsuyoshi, as well as some brand-new tracks, and for the first time you could switch between them mid-game. The return to a successful formula coupled with new advances sounds like it should have been a guaranteed hit, but *OutRunners* wasn't a particularly successful arcade game.

"I think there was a mix of reasons for that," Steve tells us. "First it was a two-player arcade cabinet only, so it was probably quite expensive for arcade operators at the time. Second, it was around the advent of polygonal 3D racers, released the same year as *Virtua Racing* so likely for many operators it looked a bit more old fashioned." It's a very valid point – not only was the game sandwiched between *Virtua Racing* and *Daytona USA* in Sega's release schedule, those games also offered the game's key selling point of support for eight-player races. It also had a different tone than previous *OutRun* releases, as Steve notes. "Unlike *Out Run* which played it very straight (mostly!) it also had a very Japanese sense of comedy and look, which I love, but might not have been quite the taste of many western arcade operators!"



» The System 32 hardware pushed beautiful scenery faster than ever before in *OutRunners*.

Another factor might simply have been that fans weren't ready for a multiplayer *OutRun*. "No doubt it was a great game and the multiplayer was fun but it did not feel right to me," says Patrick. "I was pleased that it came back to a more traditional gameplay after *Turbo*'s complexity, but in my mind *OutRun* was a single player experience." But even when playing solo, *OutRunners* didn't always hit the spot. "I do remember playing it quite a bit on a Spanish holiday as a single player and enjoying it," Patrick recalls, "but some of the more wacky vehicles and drivers just grated a little." A ropey Mega Drive conversion failed to endear it to the home audience, too.

Did you know?

■ *Out Run 3-D* includes support for the Japan-only Master System FM sound unit, despite not being released there.

Following the relatively weak reception of *OutRunners* in both the home and arcade settings, the series went dormant for a full decade. The original game turned up in retro packages such as *Sega Ages Vol. 1* and as a bonus on *Shenmue II*, but it would be 2003 before a true new *OutRun* arrived. Luckily, the wait would be more than worthwhile.

> **"Four-player races still had that sense of calm I cherished from the single-player"**
> Patrick Michael

F50
Introduced: **1995**

Handling
Max Speed
Acceleration

F355 Spider
Introduced: **1995**

Handling
Max Speed
Acceleration

550 Barchetta
Introduced: **2000**

Handling
Max Speed
Acceleration

360 Spider
Introduced: **2001**

Handling
Max Speed
Acceleration

Enzo Ferrari
Introduced: **2002**

Handling
Max Speed
Acceleration

F430
Introduced: **2004**

Handling
Max Speed
Acceleration

Superamerica
Introduced: **2005**

Handling
Max Speed
Acceleration

Did you know?

■ The Mega Drive version of *OutRunners* includes the *Virtua Racing* car as a bonus, but only in Japan.

» Yu Suzuki was the creator of *Out Run*, as well as many other classic Sega games.

» The brightly-lit streets of *OutRun 2 SP*'s Casino Town are clearly inspired by Las Vegas.

» Sean Millard was senior designer on the Xbox port of *OutRun 2*

***OutRun 2* was a first for the series – a direct, numbered sequel.** It's a pretty bold name, when you think about it. Essentially, players were being told that a true successor had finally arrived after 17 years of waiting. But there was reason to believe it was going to deliver on that promise, because it was being developed by AM2 with Yu Suzuki as the producer. Even within Sega, expectations were high. "I had not long joined Sega when *OutRun 2* was first discussed," Patrick recalls. "I have to say I was pretty excited, especially as my new job meant the opportunity to not only play it before anyone else but more importantly for free."

In many ways, it was the old made new again. *OutRun 2* used Sega's Xbox-based Chihiro arcade board, the most advanced hardware on the market at that time, and looked beautiful as a result. It offered a variety of cars to choose from, accommodating for different driving styles – and for the first time ever, they were licensed Ferrari models. But beyond that, the *OutRun* mode was the classic game reborn, a race against the clock across branching stages. "Everything you wanted was there but better," remembers Patrick. "The music, the visuals, the drift mechanic and suddenly multiplayer just clicked into place. Four-player races still had that sense of calm I cherished from the single-player." There was also a new Heart Attack mode, in which you had to impress your girlfriend by completing challenges, alongside Time Attack.

"At the ATEI show when it was exhibited publicly for the first time in Europe there was never a free seat to play from the moment the show opened until the power was shut off at night, the response was sensational," recalls Patrick. Arcade operators pounced on the game and an Xbox conversion quickly went into production at Sumo Digital, where developers were keen to get to work. "I was over the moon! Not only one of my favourite games of all time, but a proper AM2-developed sequel that hadn't even hit arcades over here," recalls Steve. However, it was far from a simple conversion job. "Taking an experience that could be completed in minutes as a coin-op to something that took a few hours on console was the biggest deal design-wise," says Sean. "Coming up with engaging Challenges that felt appropriate to the brand and would enliven and grow an already almost-perfect experience was pretty tough." Steve recalls the technical challenge vividly, too. "Sega also wanted full online multiplayer! Plus we had to pull it into half the memory than the arcade machine had, plus get it all to load and run from a DVD. Did I mention we had just over six months?" The tough job was pulled off well, though – with 101 missions, extra tracks based on the unconverted arcade games *Daytona USA 2* and *Scud Race* and an unlockable conversion of the original game, the Xbox version was an excellent package.

As good as *OutRun 2* was, it got even better in 2004 with the release of *OutRun 2 SP*. The game added rival cars to race against, as well as slipstreaming by driving behind other cars. But the biggest addition was a whole new set of 15 stages, based largely on locations in North America. "I think they nailed it so perfectly the first time, they wanted to look for improvements, but in a way that again sat with the whole mechanics of play rather than break the balance they'd achieved," says Steve. "All of the additions are natural and subtle ways for players to work on their techniques for better and better times. So picking when to overtake to get a boost from traffic, a brilliant risk/reward choice, the rivals were there to show you better lines and the new stages were sublime. The American road trip feel to *SP*, I think, gives the game a different feel, plus still plays the history of *Turbo OutRun*, but in a complimentary way."

OutRun

Around The World

Your guide to the key locations you can visit in the OutRun series

WASHINGTON D.C.
TURBO OUTRUN

MEMPHIS
TURBO OUTRUN

NEW ORLEANS
TURBO OUTRUN

HAWAII
OUTRUNNERS

ATLANTIC OCEAN UNDERWATER TUNNEL
OUTRUNNERS

America

When Sega was researching new games it would often send developers out for location shoots. Due to being inspired by *The Cannonball Run* (starring Burt Reynolds), Yu Suzuki travelled to America in the hope of being suitably inspired by the country's vistas. He changed his mind upon realising how vast the country was, and switched to Europe. He returned to America for the 1989 follow-up, *Turbo OutRun*. America (along with locations such as Easter Island and the Amazon) would prove to be the inspiration for *OutRun 2 SP* when Sega AM2 created its follow-up sequel to *OutRun 2* in 2004.

RUSSIA
OUTRUNNERS

CHINA
OUTRUNNERS

JAPAN
OUTRUNNERS

HONG KONG
OUTRUNNERS

AUSTRALIA
OUTRUNNERS

"I would use the newest technology to make the world's most pleasurable driving experience"
Yu Suzuki

Did you know?

■ The Route 666 stage of *Bayonetta* includes an *Out Run* reference in the form of a *Splash Wave remix*.

Europe

Yu Suzuki moved away from his original idea to tour America and instead switched to Europe. He hired a car and spent two weeks driving around a large number of European locations with a video camera, taking as much test footage as possible. He visited a large number of cities, including Frankfurt, Monaco and Venice, soaking up the atmosphere and interviewing the locals to get a sense of place. The end results can be seen in the final game, and at the time it felt instantly different to other racing games. When Sega released *OutRun 2* in 2003, Europe once again featured heavily in the 15 available stages.

» Drifting is crucial to success in the whole *OutRun 2* family of games, no matter which course you play.

» Coast 2 Coast is an excellent mode that's chocked full of challenges to complete.

***OutRun 2 SP* was made available in more cabinet configurations than the original version and was popular both as an upgrade and a standalone purchase, so it can still be found in many arcades.** "The monster eight-player behemoth has yet to be surpassed by any driving game," says Patrick. "Walking up to one now you get a tingle of excitement. You look at those detailed rear mouldings and physically choose your ride. At release the cost to the operator was extraordinary but they hold their value because the income is still there, the draw is still as strong."

Sumo Digital again developed the conversion of *OutRun 2 SP*, which was titled *OutRun 2006: Coast 2 Coast* outside of Japan. The game built on the template of the original *OutRun 2*, with a variety of additional missions and unlockable content. Better yet, more players could get in on the act as PC, PS2 and PSP versions joined the Xbox version. A cut-down version called *OutRun Online Arcade* was released for Xbox 360 and PS3 in 2009, but this has since been removed from both services due to the expiration of Sega's licensing deal with Ferrari.

Since then *OutRun* has been put into the Sega vault, appearing in cameos and retro rereleases. There are no plans for *OutRun 3*, but Yu Suzuki knows how he'd approach it. "I would want to use the newest technology to make the world's most pleasurable driving game experience. It would, of course, have to be a convertible, and you would be able to feel the wind and fog and changes in the weather," he tells us. "And there would be a pretty girl in the passenger seat," he adds.

Despite being dormant, there's still a huge amount of love for the *OutRun* series, and its enduring appeal easy to explain. "It is the epitome of 'just one more go' – the turns you take at the game are tantalisingly brief. It's like reading a book with short chapters, you can't put it down," says Sean. "The structure works, the aesthetics work, the pace of the game is perfect – so many tiny things make a perfectly whole." For Patrick, it's all about the atmosphere. "You have the magnetism of Ferrari, the warmth of the sun, the music and a wide, open road with the incredible drift mechanic. What more do you need?" But we can't top Steve's succinct conclusion. "It's the freedom of driving expressed sincerely and perfectly," he opines – and there's no room for disagreement.

Special thanks to Steve Lycett for making this article possible.

20 YEARS OF QUAKE

The aftershocks of Quake's arrival some 20 years ago are still being felt to this day. Ian Dransfield takes a look back at the FPS series that managed to constantly reinvent and raise the bar

Did you know *Quake* wouldn't have existed – at least not in the form it did 20 years ago in 1996 – were it not for *The 7th Guest*? Graeme Devine, creator of *The 7th Guest* and designer on *Quake III*, explains: "I found some emails between John Carmack and I when he was working on *Quake*. We were doing *The 11th Hour* at the time, and he would tell me, 'I'm coming at you in real time!' But at the time doing things like CD audio and TGA [graphics] file loading were mythical secrets. So I shared the source code with him from *7th Guest* that could handle that."

There's a blind spot when it comes to *Quake*'s influence, seemingly because while it standardised some now-common elements of games, it wasn't the *first* to do them. *Quake* might not be spoken about in the same reverent tones you get for Valve's crowbar-toting series, nor might it evoke the same nostalgic joy that *Doom* does, but in many ways it trumps both games simply in respect of what it did for first-person shooters and gaming in general.

The obvious start is what *Quake* looked like – it was fully three-dimensional and could take advantage of 3D accelerator cards, while being released mere months after the sprite-heavy *Duke Nukem 3D, which had 3D in the title*. Pure 3D games had been done before, but it was left to the magic and drive of John Carmack to craft the original *Quake*'s engine into something more. It was *quick*. Yes, it looked nice, it had the lighting effects and all the rest of it – but the speed was important. Without that, *Quake* would have been dead in the water.

Then there's internet play. Again, something that existed before – and, of course one of *Doom*'s biggest, lasting marks on gaming's history – but an area in which id outdid itself, creating a new standard for online play still in use to this day... Admittedly with faster connections. John Romero, cofounder of id, says internet play was a huge factor in *Quake*'s planning. "We had been playing deathmatch for a couple years and were at the forefront of defining what multiplayer meant back then," he explains. "We considered eSports during *Quake*'s development but decided to leave it to others – just allowing others to play with *Quake*'s internet gameplay was what we needed to do."

It worked. *Quake* was a huge hit with online play, and once the *QuakeWorld* update was released... Well, Graeme tells us exactly what it meant for online play: "I remember playing *Quake* multiplayer and thinking the world had changed. That was the game that made internet gaming a thing."

Thirdly, *Quake*'s approach to modding – again, nothing new, but something perfected here – changed the way people approached gaming. Entire careers have risen based on fan-made mods to *Quake*, like David 'Zoid' Kirsch, whose efforts on creating a Capture The Flag mod for *Quake* saw him landing a job at id, eventually moving on to a role at Valve. *Quake*'s rise also came around the same time as the popularisation of the internet, and with that came a lot more sharing.

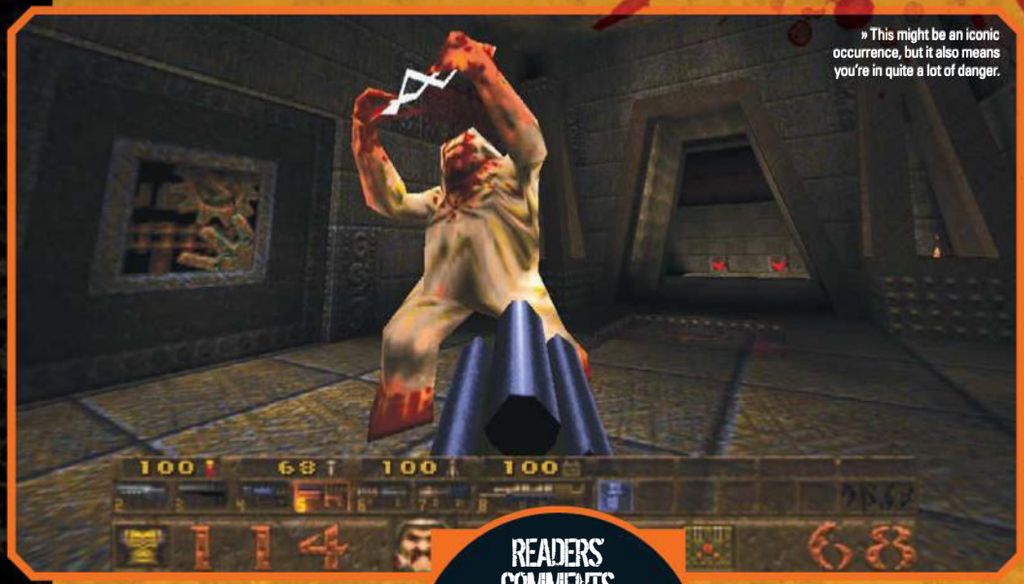
"We thought that *Quake* was going to be bigger than *Doom* because we aimed for our newest games to be the best," Romero says. "It had more advanced tech, internet multiplayer, and was eminently moddable." This confidence meant the team at id was eager to make *Quake* something special... But that drive couldn't last indefinitely.

"After a year of creating levels and throwing them away as the engine increased in speed and functionality, the team burned out," Romero explains. "We had a big meeting in November 1995 that decided the fate of the company – now that the engine is done, do we work on innovating in game design, or do we just put in FPS weapons and finish it as fast as possible? The ▶

READERS' COMMENTS

Having studied medieval history the world of *Quake* really appealed to me with its knights and castles. Love that game, never got into the other ones

IANPMARKS



» This might be an iconic occurrence, but it also means you're in quite a lot of danger.

▶ decision was to just get it done as the team was fried."

Adrian Carmack – no relation to John Carmack – was lead artist on the first three *Quake* titles, as well as a cofounder of id. His experience with the scrapping of a year's worth of work was one that still annoys. "There was a lot of uncertainty early on in *Quake*," he says. "We scrapped the original design, so a year's worth of art was lost – it was for the best, in hindsight, but I hated losing all the art. There was panic near the end of the project about the amount of time it was taking so we all moved into one big room that had been gutted.

"It was kind of cool but at the end of a project everyone gets on each others' nerves, so the big room probably wasn't the best idea. The whole idea was to increase productivity and creativity but

READERS' COMMENTS

Played *Quake* eight-player when I worked at Psygnosis in 1996. I was unbeatable and used to hear other players screaming in frustration. I'm generally not very good at games, but I was killer at this!

STATION

» While a PlayStation version was developed, it never saw release – *Quake* did hit the Saturn, though, in much-diluted form.

» It's not the busiest online, but you can still manage to comfortably find matches in *Quake*'s online mode.

I doubt it did either. We were all still friends for the most part, so we still had our fun."

Seven months after the November meeting, on 22 June, 1996, *Quake* was uploaded to the world by Romero, alone in the office, sans fanfare or celebration. Just under two months later, he was fired from his role at id, accused of not pulling his weight – something Romero denies. "The first year of *Quake's* development was mainly about making the engine," he tells us. "That year I wrote QuakeEd so the designers could experiment with level design.

"In addition to initial *Quake* level design, I also worked on *The Ultimate Doom*, *Master Levels For Doom*, *Hexen*, console ports of various games, and several books and strategy guides. I was very busy, just not spending my time by throwing it away on useless *Quake* design as the engine would not be ready until December. I made more levels than the other designers on the team. Any talk about me working less than others is incredibly untrue."

The drama of Romero leaving the studio he helped to found is one still talked about in gaming circles today, but the fact is id continued on – as did *Quake*. It was out there in the hands of gamers, and it was having an impact. But the situation at id had become precarious, at least according to reports at the time. Advisor to id Todd Hollenshead was brought in as CEO to help tidy up the studio, helping it transition into a more professional outfit.

"The company only had 13 total employees back then," Todd explains. "I was coming in as a new CEO. John Romero has just been fired a couple of months before I was hired. And within six months, we had our business development guy and our only producer leave to join Romero at Ion Storm. John Carmack's right-hand programmer and a genius in his own right, Mike Abrash, decided to move back to Washington. Hell, even our intern quit! I was reading in the gaming press that the company was falling apart and that I would be fired within a year."

Unfortunately for all involved, the truth wasn't too far away from the reports. *Quake* was to be sold via a shareware/CD arrangement, whereby players had the first episode for free on disc and could pay a fee to unlock the rest. The CD had been cracked, and people were getting full *Quake* free of charge. "When the full game was released by our publisher, retailers didn't want the shareware, and tens of thousands of CDs were returned," Todd says. "We ate a lot of inventory, but it was partially a blessing in disguise due to the cracked encryption. We had stacks of unpaid DHL invoices for *Quake* direct sales literally waist high from the floor in our file storage room. The shipping charges were all wrong and no one wanted to take the time to fix it so it stacked up. The retail shareware was a huge mess when I arrived, but we would get it straightened out."

Straightened out it was. After the initial hiccups, *Quake* settled into a rhythm of selling well – and already people knew the FPS had changed forever. "No one else in the industry had anything close to what [John] Carmack and Michael Abrash had built with the *Quake* engine and everyone wanted it," Todd says. This didn't just bode well for players – id Software itself would benefit from this attention. "The Mission Packs for *Quake* were looking good and every publisher wanted the distribution deal for them," Todd explains. "They also wanted whatever we did next."

What id did next ended up being *Quake II*, released in 1997 and a surprisingly different game to the original. Titles like '*Strogg*', '*Lock And Load*' and even just '*Load*' were toyed with in the early days, such a different proposition it was, but the team stuck with *Quake II* (in part because it was difficult to find a name that hadn't already been trademarked) – and another legend was born. "It was a conscious decision [to change *Quake II*'s direction] and controversial inside the company," Todd remembers. "We weren't happy with the *Quake* story. Romero was gone, so there was no one left to defend it. Kevin Cloud headed up *Quake 2* and he wanted to make it story-driven."

So it was that *Quake II* introduced the struggle between the humans and a biomechanical alien race known as the Strogg. While certainly not *heavy* on story per se, the game introduced a lot more narrative into many elements of the game, giving the player motivation as to why they were gunning down the legions of alien bastards in their way. The levels where fellow marines were literally being ground into a paste stuck with many of us.

Released just 18 months after the original, *Quake II* saw the debut of a new engine – *id Tech 2* – which went on to form the basis of many games in the late Nineties and early Noughties. It upped the graphical fidelity to the point where people, on first seeing the game at E3 1997, genuinely didn't believe it was running in real time on hardware people had in their homes. Technically speaking, *Quake II* refined rather than made huge steps, a la the ▶

THE BEST OF QUAKE'S ARMOURY

NAIL GUN

APPEARED IN: *Quake*, *Q4*

■ Single-handedly summing up *Quake*'s brutality, the nail gun was a machine gun replacement firing... Well, nine-inch nails.

SUPER SHOTGUN

APPEARED IN: *Quake*, *Q2*

■ The shotty is a series mainstay, but the Super Shotgun only appears twice – and it's a close-range *god*.

LIGHTNING GUN

APPEARED IN: *Quake*, *Q3*, *Q4*

■ Just when you think things are relatively normal, along comes a gun that fires lightning. Because why not, eh?

BFG10K

APPEARED IN: *Quake II*, *Q3*

■ Getting a dose of *Doom* in our *Quake*, the BFG10K was the 'super weapon' that returned for a couple of *Quake* games.

HYPER BLASTER

APPEARED IN: Quake II, Q4

■ Specifically the version in *Quake II*: a fast-firing weapon that you should never really stop firing.

RAIL GUN

APPEARED IN: Quake II, Q3, Q4

■ Fairly decent in the second game, the Rail Gun became iconic as of *Quake III* due to it being the closest *Q3* had to a sniper rifle.

ROCKET LAUNCHER

APPEARED IN: All

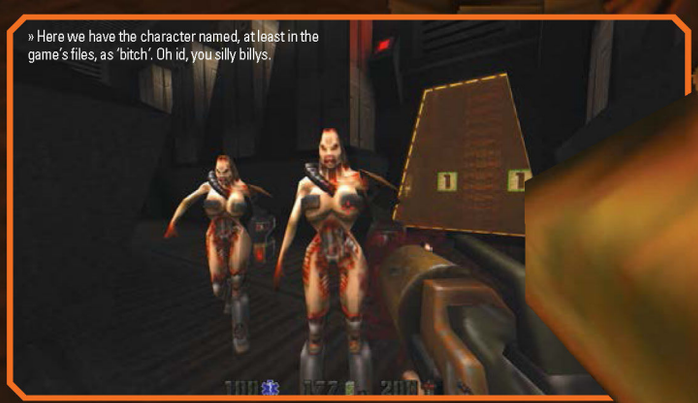
■ *Quake* just wouldn't be *Quake* without a rocket launcher and, of course, all the rocket jumping that brings with it.

GRENADE LAUNCHER

APPEARED IN: All

■ While it might have been routine by the fourth game, in the original *Quake* this weapon was a technical achievement.

» *Quake II* on PSone was... alright, all things considered. Not a patch on the original, of course, but it worked.



» Here we have the character named, at least in the game's files, as 'bitch'. Oh id, you silly billys.

> "I WAS READING IN THE PRESS THAT THE COMPANY WAS FALLING APART AND THAT I WOULD BE FIRED"
>
> Todd Hollenshead

QUAKECON

Not many games have an entire convention named after it…

Starting in 1996 and still running to this day, QuakeCon is the annual meetup of fans of the *Quake* series – and *Doom*, and anything id Software has made, *and* more recently Bethesda/Zenimax – but it didn't even start out as an official event. Organised by a few fans on the #quakecon IRC channel, the 1996 gathering started with around 30 people and grew to about 100 after a couple of days. Best of all, though, id Software showed up unexpectedly on the last day, with John Carmack setting a bit of a precedent by holding a talk with fans for just under an hour; this later became Carmack's keynote speech he would hold every year.

By 1999, id was actively organising the event, after having acted as sponsor for the previous few years, and began shifting the event into bigger locations, with the crowds growing accordingly. Rather than just a corporate benefit, id's involvement also meant, for example, people could get their hands on games before they had been released – like *Quake III* in 1999, which hadn't been shown off publicly.

More recently QuakeCon has become another date on the calendar for both the gaming public *and* press, with new titles shown off not just from id/Bethesda, but a host of other publishers too. The organic growth of the convention has helped it to keep some level of credibility in the gaming community – the sort of thing most publishers would happily pay top dollar to inject into their own events.

Attendance has grown to around the 10,000 mark, and while John Carmack – and numerous others – have left id, the keynotes and stage presentations continue unabated. Not bad for something that came from a few people arranging a 30-person meetup.

x3 Images © QuakeCon

▶ first game, but it was another hugely influential title in the pantheon of first-person shooters.

When Todd arrived at id the team was already busy making *Quake II* – which had been completely redesigned after Romero's departure. "Even that early I knew *Quake II* was going to be awesome," he tells us. "Everyone at id knew it. So while there were a bunch of problems we had to deal with and important people we had to replace, we had the best programmer, the best artists, and talented designers. We were excited about showing *Quake II* at E3 and blowing everyone away once again."

The loss of one of id's founders had been felt, according to Adrian. "Romero leaving definitely changed things," he says. "The team still worked well together, but we missed his creativity and his humour." And while things did continue on, there were more staff losses to follow – some joining Ion Storm, American McGee, Mike Abrash and Sandy Peterson moving on – all leaving zero designers from the *Doom* era, and just Tim Willits (still at id to this day) from the first *Quake*. There's a reason *Quake II* was a very different game – it was an almost entirely different team. But with that new team came a liberation that wasn't there with the first game, as Todd explains. "*Quake II* development was about doing all the things that the artists and designers wanted to do in *Quake* but couldn't because of the rawness of the tech," he says. "Plus, [John] Carmack contributed his genius when we added a hardware-accelerated version that really made *Quake II* look superior to anything else in the market."

Romero, for his part, admitted he is a fan of the sequel. "I loved *Quake 2*," he elates. "I played and finished it right after its release and it was a lot of fun." But he maintains the approach that the series would have changed, had he still been at id. "We would have made *Quake II* and then moved onto a brand-new game, just as had been our pattern for years. We would not have been making endless sequels of our previous games. There wouldn't ▶

"Even that early I knew Quake II was going to be awesome"

Todd Hollenshead

Quake's endless engine influence

There has been a hell of a lot of games based on id's engines – not just mods, but world-beating franchises owe their existence to Quake. Here's just a few...

have been a *Quake III*, but there may have been a deathmatch-only videogame that looked and played differently."

Adrian, meanwhile, chooses the second game as his favourite in the series, though not necessarily meaning it's the best. "My favourite was *Quake II*, because it was different and a cohesive project," he explains. "It was going to be our best project but we got in the way of ourselves. There's a lot more there – what could have been had we all worked together. But it was still a great project!" Though the change in direction wasn't felt quite as much by the artist as it was by players. "The fact that each project was different was good for creativity," he says. "But they weren't that different. They were still sci-fi future worlds and first-person shooters. I once told a good friend, 'If I have to draw one more f**king metal f**king wall I'm going to vomit!'"

While a lot of the memories around *Quake II* focus on its story-led single-player mode – which is still fantastic fun, endlessly inventive and surprising even in contemporary terms – there was that robust, popular and *damn* good multiplayer section, which had made improvements to make it easier for us all to go online and get a-gibbin'. It was clearly the direction John Carmack wanted to take things in, and after *Quake II*'s release he started planning with the team at id for something different for a sequel.

"There was a great deal of pressure to perform with *Quake*, since it was the follow up to *Doom 2*," Adrian explains of *Quake*'s ever-changing forms.

READERS' COMMENTS

Quake II for me. Never got into *Quake* that much, preferred the simplicity blasting fun of *Doom*. *Quake II* was great multiplayer fun though.

KIWIMIKE

> "MY FAVOURITE WAS QUAKE II BECAUSE IT WAS A DIFFERENT AND COHESIVE PROJECT"
>
> Adrian Carmack

TEN ESSENTIAL QUAKE MODS

TEAM FORTRESS

■ It's easy to forget Valve's hat-selling classic of online class-based teamplay began as a mod for the original *Quake*. Ostensibly the same game played today, *Team Fortress* had the core features that still make it such fun to play – teams, classes, turrets, spanners, everything you'd hope for. While it made the jump to the *Half-Life* engine for *Team Fortress Classic*, the original does still have a dedicated playerbase – it might be 20 years old, but it's not too difficult to find a game wherever you are in the world.

QUAKE RALLY

■ In the early days of large-scale modding, people found it easier to stick with the general theme that was laid out in front of them. It's no surprise that most of *Quake*'s mods were first-person shooters. So entrenched were people in these genres that when *Quake Rally* popped up on the scene, people didn't believe it had been done – a rally game, made in the *Quake* engine. Scratch that – a *good* rally game made in the *Quake* engine. *Quake III Rally* carries the torch today, but the original was mindblowing.

THREEWAVE CTF

■ The original *Quake* launched without a Capture The Flag mode. Just let that sink in for a minute. The game that made online gaming what it is today didn't come with one of its most popular modes. This was fixed quick smart by one David 'Zoid' Kirsch, who released the first CTF mod for *Quake* not long after the game itself released in 1996. Kirsch actually went on to work for id, designing CTF modes for its future *Quake* releases, and he now works at Valve. Not a bad career for someone starting out as a modder.

MALICE

■ One of the better mods for *Quake*, *Malice* was all-but a total conversion, bringing new levels, weapons, characters and even voice acting to the game. It might not hold up these days compared to id's masterpiece, but *Malice* offers a snapshot of gaming in 1997: making those tentative steps into fast-paced 3D worlds; taking advantage of increased storage space for cinematics and voiceovers. While more of a curio than anything today, it's a good indicator of how gaming was back then in the late Nineties.

ACTION QUAKE II

■ *Quake II* was a bit too gritty and sci-fi for some – but where most who took issue complained, some got together and crafted a mod that made everything a less gritty and a lot more like the action films of the Nineties. *Action Quake II* still has an audience to this day, and with good reason: it's fantastic fun. Ludicrously quick and over-the-top, *Action Quake II* features more realism (though not *realistic*) damage, locales and weapons, and has gone down in history as one of *Quake 2*'s best ever mods.

"We didn't feel that kind of pressure with the rest of the series. We knew the fans would be upset that the weapons and gameplay changed after our experience with *Quake*, but within six months they would love it and consider it a classic!"

While Romero would have done it differently, he was busy at Ion Storm with *Daikatana*. John Carmack did what he wanted to do – first in the shape of *Quake III: Arena*, a multiplayer-focused shooter way ahead of its time, then *Quake III: Team Arena* and, eventually in 2008, *Quake Live* – a modified, pure multiplayer version of *Quake III*. Fans of multiplayer gaming are sure to be happy that Romero wasn't in charge of id's decision-making at that point, to be fair.

If you'd said that back in 1999 at the time of *Quake III*'s release, though, you'd have been laughed out of whatever forum you were posting in. People tend to want more of the same – *Quake III* was not more of the same. While it could be played in single-player, with bots patrolling each arena for you to battle with, it wasn't a *traditional* single-player mode. More an offline training mode before jumping in with the action online.

And what action it was (and still is) – stripped down to the core tenets of what make a good online shooter, *Quake III* was fast and fluid, full of the kinds of maps that are – loathe as we are to say it – easy to pick up, but difficult to master. Extensive prerelease testing was conducted to help balance everything out and updates were implemented frequently after the game's release. It's always an arguable point and one riddled with individual opinions, but *Quake III: Arena* is up there with the best multiplayer shooters of all time, even if Adrian tells us it was his least favourite of the series to work on, as it "narrowed our fanbase". "I didn't like working on *Quake III* much," he remembers. "And it seemed like everyone else felt the same way."

Nevertheless, part of the acclaim has to come down to how focused the id team was by this point – the disarray of the original *Quake*'s release now a distant memory and the team somewhat more settled than it had been previously, plans progressed in a more steady fashion. "The plan was always multiplayer," Graeme explains. "We wanted a multiplayer-only online game that was super balanced and worked on modems."

» Standard *Quake II* actually has a healthier online audience than some games released in 2015.

» Okay, so playing offline isn't the best way to play *Quake III* – but the bots are actually pretty good.

READERS' COMMENTS

Quake II is the best for me. A fantastic Christmas present that set up the festive season perfectly. Played it through 'til the end and loved every minute. The 3dfx graphics were fantastic

SLACEY1070

» *Quake III*'s run on PS2 was hamstrung by a lack of online, but four-player splitscreen did a good job of making up for the loss.

The Quake series has sired countless mods. We pick out the best of the massive library

CHAOS DEATHMATCH

■ This mod tweaked the *Quake II* formula hugely, adding weapons, like crossbows, and offering new maps and features like faking your own death, or kamikazeing into battle. Living up to its name admirably, *Chaos* managed to carve itself a niche on the *Quake II* mod scene thanks to an extreme level of customisability on the server end of things – countless different game types were created by users, and it meant you never really knew what to expect from a *Chaos* match. Apart from crossbows, obviously.

ROCKET ARENA

■ Possibly the only major mod to have been released for every single *Quake* game, *Rocket Arena* has earned its status as one of the best mods out there. It's simple enough: players start in an arena with identical resources, and maps feature no pickups. Last person standing, wins. This means no rushing for the rail gun, no camping at respawn points and no way to get your health back once you've been battered. So popular is *Rocket Arena*, in fact, that one of its modes – Clan Arena – is included as standard in *Quake Live*.

WARSOW

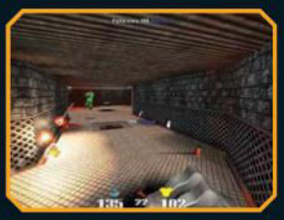
■ Releasing in 2012 after over half a decade in development, you would expect *Warsow* to be a latter quake mod. But no – it actually runs off a heavily modified *Quake II* engine, which is incredible when you see how *Warsow* looks and runs. Emphasising athleticism over shooting, the game is full of trick jumps, dodging and many other speedy techniques that reward the fleet-footed over the static snipers. *Warsow* can be picked up for free from the likes of GOG, with a Steam version coming, and it's well worth a go.

CHALLENGE PROMODE ARENA

■ It's always a badge of honour when a mod is picked up in an official capacity, but when your mod becomes the *standard* used in professional, competitive *Quake III* play, you know you're onto something pretty big. *CPMA* features altered physics, allowing midair control, rebalanced weapons, changed jumping techniques, customisable HUDs and much more – it's easy to see why professional *Quake* players would find it appealing.

TREMULOUS

■ An ambitious, ongoing and bloody good fun *Quake III* mod, *Tremulous* mixes first-person shooting with elements of real-time strategy, pitting humans against aliens. Base building and defence is common on both sides, but while the humans play a more generic, shooty-bang way, the aliens rely on agility, melee attacks and – once they've racked up enough kills – the ability to evolve into more powerful creatures. You can see elements of *Tremulous* popping up in games like *Evolve* and the 2016 version of *Doom*.



20 YEARS OF QUAKE

GREAT QUAKE MOMENTS

A series as prestigious as Quake naturally has highlights that will stay with you forever...

QUAKE

GRABBING THE GRENADE LAUNCHER

■ Early in the game you're given your first go with high explosives. Projectiles arced through the air, bounced off walls and could be aimed around corners, it was revelatory for its time.

BAGGING YOUR FIRST BOSS

■ It was something of a surprise when you realise shooting the first boss didn't work. Mixing in a bit of puzzling with the destruction makes for one of *Quake*'s best moments.

QUAD DAMAGE

■ *Doom* had Berserk and *Quake* had Quad Damage – we know which we prefer. *Quake*'s power-up saw every weapon you had deal four times its base damage, causing any enemies hit while in this state to explode in a shower of bloody chunks.

QUAKE II

FINDING A NEW FRIEND

■ Just when you thought you had everything figured out, *Quake II* drops a bombshell – well, the Rail Gun – on you: and it's amazing. You suddenly find yourself with this powerful, versatile and thoroughly useful new weapon.

YOU'VE GOT STORY IN MY QUAKE

■ The second game had a clear focus on story. As such, when you saw scenes like your fellow marines being brutally experimented on by the Strogg, you cared... At least a little bit more.

CRACKING MAKRON

■ *Quake II*'s last boss isn't difficult, but he does provide a simple, satisfying end to the game. Upon defeat the Strogg warlord ends up split in two, writhing on the floor in agony.

QUAKE III

I'M FLYING!

■ You quickly realise there are a lot of jump pads around in *Quake III*, but it might not immediately dawn on all players that aerial combat is a big element of the game. Learning how to quickly adjust your weapon mid-flight, raining down the fury from above, is key to success.

PLAYING ONLINE YEARS LATER

■ It's testament to *Quake III*'s forward-thinking nature that you can still load it up today and find a game with little-to-no trouble. Sure, the competition has honed its skills over the years, but you can still have a hell of a lot of fun.

QUAKE 4

THE STROGG HEALTH SERVICE

■ *Quake 4* is not a game of many memorable moments, but its main one stands out as one of the best in the whole series. A gruesome rollercoaster of surgery, players are restrained as they go through the process of 'Stroggification'.

FINISHING THE GAME

■ Once you're done with *Quake 4*, you're done – there's no pull to go back, no real draw to sit through the meandering, endless scenes of macho bullshit dialogue. It's not a bad game, it's just not very good – and finishing it off is a relief more than anything.

▶ When I joined id that was the mantra and we stuck to it. You only had to come around the office at 10pm to see us all playing the game to know that it was loved. We argued about the numbers and spread of shotgun pellets! We loved that game."

Todd agrees – while admitting there was some minor strife internally because, once again, this was nothing like what had come before in the series. "*Quake III* was another internal battle as we struggled to justify calling it '*Quake*'," he says. "Even though it basically had nothing to do with the story from the first two... But *Quake III: Arena* is the game I have spent more time playing than any other game. Tourney 6 CTF (Xaero's map) is my all-time favourite. We used to play for the Master Of The Universe (MOTU) 2vs2 Capture The Flag every Friday. Tim Willits made that map one day on a bet with me that he couldn't make a fun *Quake III* map in an hour. I lost that bet badly!"

While this positivity had taken over some of the office, the public was still lukewarm on *Quake 3*. At least until *Q3Test1* – the game's first beta version – was released in early 1999, followed shortly after with *Q3Test2*. "People still play those versions today," Graeme says, explaining how id soon realised it had kickstarted a bit of a revolution – again – in online play. "John and I would walk around QuakeCon looking at people playing and I think we knew something had changed in the world. We didn't know then

» Online play is still up, running and busy even to this day – a testament to *Quake III*'s quality.

» It's early on you realise how much of a different beast *Quake 4* is. You have squadmates a lot of the time, for one.

» Complaints that *Quake 4* was just *Doom 3* in different clothes were well-founded.

» Some of the enemy designs were cool in *Quake 4*, and the odd boss battle got the heart racing.

that the competitive online play would become *the* thing, but in retrospect *Quake III* was there at the beginning to kick start eSports."

After two huge games, both rewriting the rulebook on what a FPS could be, the pressure at id Software was huge from everywhere: the press, the fans, the casual players drawn in by the series' reputation. But the *real* pressure actually came from inside the company. "The pressure came from us as much as anyone," Graeme remembers. "We wanted to make the game fantastic for everyone out there. We didn't have the same internet forums we have today so there was no Reddit to go read and get more worked up about; there were the comments on Planet Quake and Blues News and that was the most direct – the only – form of feedback we got."

Todd echoes Graeme. "The greatest pressure was what we put on ourselves and each other," he says. "We fully intended and expected to set the gaming world on fire with every release in the *Quake* series, and we accomplished that with every one of them. Yeah the story shifts were kind of crazy, but John Carmack's attitude was that the story wasn't important. The rest of the team wasn't always in agreement with him, but the success of *Quake III: Arena* seemed to prove him right."

Was it all perfect? No, of course not – some never got beyond the fact this was a multiplayer-only shooter, and in a world of 56k modems in the home (at best) it was understandable. Romero might have told us he found *Quake III* to be "a really well-done deathmatch arena game", but the public at large wasn't ready for such a big, mainstream series going into a niche like this. Did that make *Quake III* a failure? Far from it.

"By the numbers, I'm sure *Quake III* was the best-performing game for id," Todd explains. "I will hear the boos across the internet as people read this, but it was probably due in part to the fact that it was the first game we made a serious attempt to stop piracy with the CD Key system. But more important than CD Keys, for me (and I think many others), *Quake III* is still the ultimate pure skill-based FPS. Nothing tops it to this day. I see many elements of the *Quake III*-style twitch gameplay now in the *Call Of Duty* series. *Quake Live* continues to attract a nice audience. The fun hasn't worn off... Calling in a massive bombing strike is awesomely fun. But a frag in *Quake III* is still as rewarding as ever and you know there's nothing 'cheap' about it."

> "I'M SURE QUAKE 3 WAS THE BEST-PERFORMING GAME FOR ID"
>
> Todd Hollenshead

Then, in 2005, something different happened – but for once it wasn't different in the way *Quake* fans wanted it to be. This was *Quake 4*: pitched by mega-publisher Activision and handed to the capable team at Raven, it ended up being a hugely missed opportunity and a the only *Quake* game in the series to have become much worse with age.

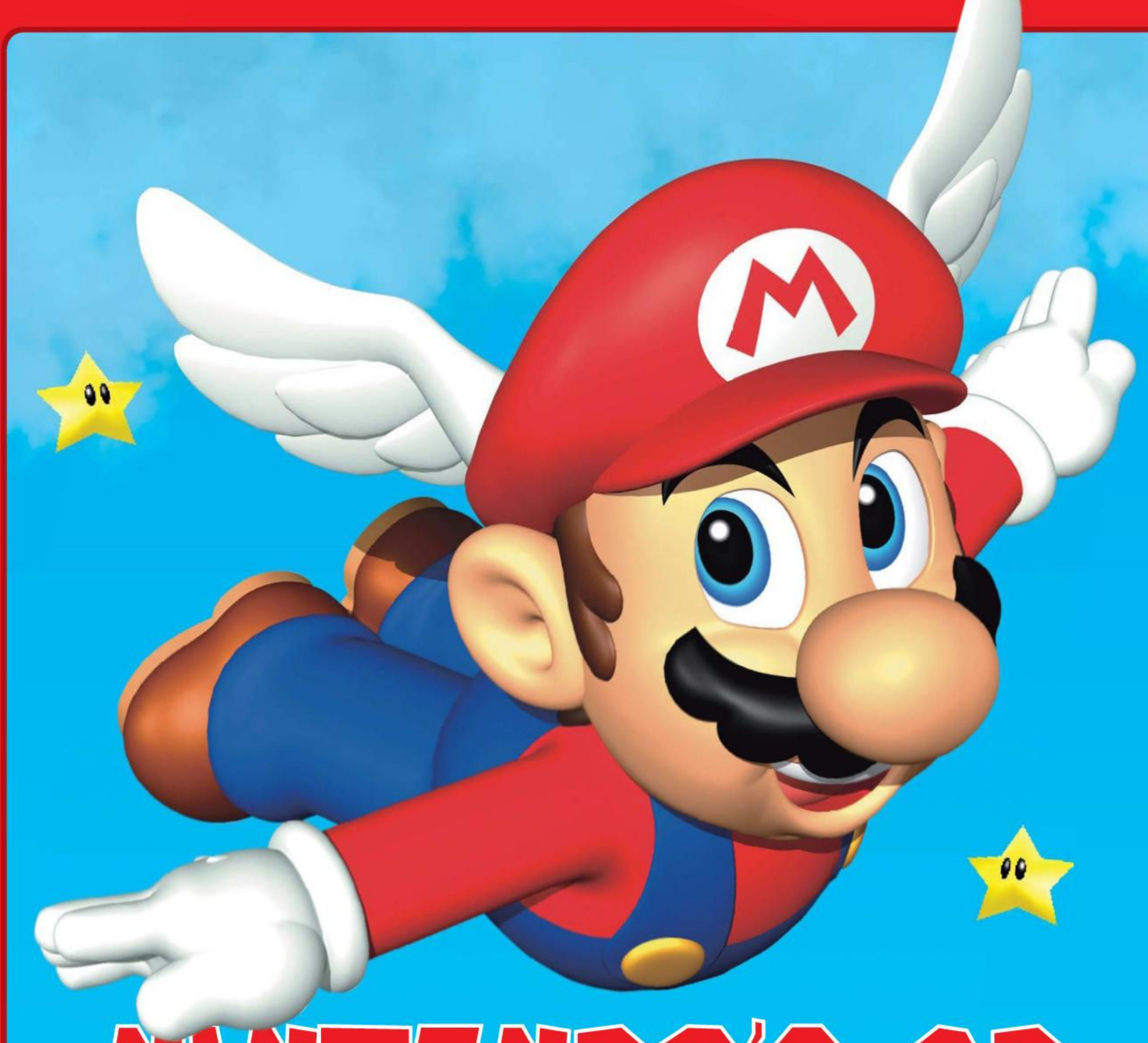
"*Quake 4* is where the brand went off the rails," Romero explains. "*Doom* and *Quake* were mashed up together - looking at *Quake 4* you can't tell whether you're in a *Doom* game or a *Quake* game. There was biomechanical stuff that belonged in *Doom*. It was dark like *Doom 3*. It didn't feel like *Quake*. Having said that, none of [the later] *Quakes* did since the original was based on H.P. Lovecraft and alternate dimensions. That's the pillar that held *Quake* together."

Quake 4 returned to the story of *Quake II*, bringing much more of a coherent fiction to the universe of a human/Strogg conflict. It did this with a lot of lengthy exposition and unskippable dialogue sequences, but it had redeeming features – namely the Stroggification scene, which we cover in the Great Quake Moments boxout. Beyond that, though? Well, it wasn't good. There are alternate views, of course – it was more of a console shooter, aimed at the nascent Xbox 360 market and attempting to create a new market for the FPS (which Activision would end up doing in 2007 with *Call Of Duty 4* anyway). There's nothing really wrong with the idea behind *Quake 4*, aside from it being more than a reskinned *Doom 3*, and Raven is a studio with a lot of good titles behind it. But *Quake 4* is excruciatingly dull, forgettable and the one game in the series nobody we spoke to had anything lengthy or positive to say about it.

Since *Quake 4*, there hasn't been much rumbling about the next title in the series. *Enemy Territory: Quake Wars* popped up in 2007, and the Splash Damage-made online shooter was excellent in its own right. But the core *Quake* series? Nary a whisper. id has been busy working on the latest *Doom* for some time, while the studio itself has undergone even more changes, with the last of the founding members, John Carmack, leaving for Oculus in 2013 in order to follow his VR dream.

Things have changed a huge amount over the 20 years since *Quake* was first dropped on the public. This is the point where we would say, 'Things are unrecognisable compared to the landscape back then', but in *Quake*'s case that isn't true: this was the series that *made* the landscape look how it does today. Even if *Quake* wasn't always first to the party, it tore up the dancefloor each and every time – barring the fourth game, of course.

While the blind spot might still be there in popular discourse, our eyes are open: *Quake*, as a series, made gaming what it is today. There are other influential titles, but to say *Quake*, *Quake II* and *Quake III* are anything other than in the top five is surely folly. "For an instant in time we had the focus, the drive, and the desire to go change the world," Graeme tells us. "And we did just that." ✱



NINTENDO'S 3D GAME-CHANGER

In an age when it was said that 3D platform games didn't work, Nintendo proved us all wrong. Nick Thorpe and Luke Albigés examine the impact of the N64's most revolutionary game...

Nintendo has always been a company that has set its own agenda, and that has rarely been more apparent than it was with the N64. Rather than following the likes of 3DO, Sega and Sony into the CD-ROM market, it stuck doggedly to cartridges. Instead of simply evolving the SNES pad, it produced a radical three-pronged controller design. Neither of those design choices proved to be the future – it's a tall order to convince an entire industry to do things differently, after all. The thing that made people take note was *Super Mario 64*, though – a bold and unique design, just like the machine it ran on. However, unlike its host hardware, it made a profound impact on the rest of the industry, shaping the development of future platform games and 3D games in general for years to come.

Of course, *Super Mario 64* had to be a bold design. The one common feature of 3D platform games released before *Super Mario 64* is that they were all distinct creations, as no two developers had the same vision of how to adapt the genre to the polygonal revolution. Exact gave us *Jumping Flash!*, a game which offered free-roaming stages, viewed from a first-person perspective. Realtime Associates delivered *Bug!*, which featured 3D stages comprised of interlocking straight paths, thus strictly regulating player movement. Xing's *Floating Runner* utilised free-roaming stages but employed a fixed perspective that made it feel almost like a top-down 2D game. Even if Nintendo had wanted to follow convention with Mario's 3D debut, there was simply no convention to follow.

The other reason that it had to be a groundbreaking game was the weight of expectation placed upon it at the time. "Up until *Mario 64*, and probably until *Mario Galaxy*, there has always been expectation surrounding a new Nintendo console and with it a new *Mario*," says Paul Davies, who was the editor of *Computer & Video Games* during the development and release of *Super Mario 64*. "So, even though we had no idea how this would shape up, the prospect of *Ultra 64 Mario* was enough to affect your breathing for a while."

Even those close to Nintendo weren't aware of what was in the works. "I was working for Software Creations at the time and they were part of the original 'Dream Team' of developers working on N64," recalls John Pickford. "I was lucky enough to be part of a group to visit the Shoshinkai 1995 show in Tokyo for the first unveiling of the Ultra 64 and its software. When we landed at the airport I remember bumping into several other British developers including the Stampers from Rare and David Jones from DMA design. David said something along the lines of, 'I hear *Mario* is looking very good.' That was the first time I had heard there was a *Mario* game in development. There had been zero publicity or even mention of *Mario* until that point."

» Later levels typically featured more floating islands, and consequently greater risk of death by plummeting.

» John Pickford was one of the early 'Dream Team' developers for the N64 and had an early glimpse of *Mario 64*.

DOFFING THE CAP

A Hat In Time director Jonas Kaerlev on how Super Mario 64 inspired and influenced his crowdfunded 3D platformer

When did you first encounter *Super Mario 64*, and what impression did you get from it?
I experienced *Super Mario 64* for the first time in the late Nineties. It was the first game I played that was fully 3D, so it was really impressive at the time.

I wasn't great at English back then, since I'm not a native English speaker, so a lot of the dialogue got lost on me, but that didn't stop me from getting all 120 Stars. The presentation made it easy to fill in the gaps and imagine what the characters were saying. If I didn't know what to do because the dialogue was the only guide, I'd just explore the level until I found out what was going on – this sparked my interest in games that provide an interesting world to explore.

What were your favourite parts of *Super Mario 64*?
There are so many good parts! I think everyone remembers the piano in Big Boo's Haunt, the vertical climb up Whomp's Fortress, and plotting vengeance against the bird who took your hat in Shifting Sand Land. Peach's Castle is also one of the best parts of *Super Mario 64* – it feels so mysterious, almost like a full level in and of itself.

Which 3D platform games do you think were the best successors to *Super Mario 64*?
Super Mario Sunshine is definitely one of the best, and it's a *literal* successor to *Super Mario 64*. It stays true to the formula that *Mario 64* created, but adds more flavour to the world, making it all seem like a real, connected place. I like how the levels transform over time. It's so cool to watch Delfino Plaza get flooded with water when Corona Mountain erupts.

Psychonauts by DoubleFine is also a really great spiritual successor! It's a bit more story-based, and the levels are amazing, especially Whispering Rock and The Milkman Conspiracy. *Psychonauts* even did *Super Mario Galaxy* gravity before that was a thing!

Which elements of *Super Mario 64* have you drawn inspiration from for A Hat In Time?
Similar to *Super Mario 64*, every mission in A *Hat In Time* is centred on a Time Piece the player has to collect. A lot of the levels undergo massive changes for every new mission, to make the level feel fresh on every visit.

At first, you might be defeating the Mafia Of Cooks to collect your Time Piece, and next you're a detective in the mission 'Murder On The Owl Express'. Every new mission has a story, and you'll get to understand more about the levels and characters on every visit.

As a developer of 3D platform games, how do you seek to differentiate *A Hat In Time* from genre-defining games like *Super Mario 64*?
A Hat In Time takes a different approach to both gameplay and story. For gameplay, the player's moveset is completely different, using a double-jump and an air boost to navigate both horizontal and vertical space. The player can also change and upgrade the moveset by collecting badges and putting them on their hat. This way, we reward players for exploring with features that enrich their experience. For story, every level in *A Hat in Time* is called a Chapter. Every Chapter focuses on a single location, be it Mafia Town, Subcon Forest, or the Owl Express train. Additionally, every Chapter introduces a new cast of characters, and these characters stick with you for the entire Chapter, until you reach the Chapter finale, where things go off the rails! In Subcon Forest, you'll be signing your soul away in contracts to The Snatcher, and on the Owl Express, you'll have to choose whether the angry Conductor or the smooth DJ Grooves is your friend, or your foe.

A Hat in Time also supports multiplayer, both local and online. We took inspiration from a *Mario 64* hack, and saw a lot of potential to fully realise multiplayer for *A Hat in Time*. You can defeat bosses, collect Time Pieces and have a good time your friends.

Lastly, *A Hat in Time* has modding support. Players can create their own worlds and missions. We've seen the amazing things people can make in their favourite games, so we want to embrace that fully. The levels can be either simple to design or they can be giant worlds with multiple missions. All these features feel like a natural evolution of *Mario 64*, and we hope everyone will be enjoying *A Hat in Time* when it comes to Windows and Mac in 2017.

Placards at Shoshinkai said that the game was 50 per cent complete, and even described *Super Mario 64* as a temporary title, but that wasn't the impression that attendees took away from the event. On a visual level alone, Nintendo had already produced something stunning. "The game was shown on the show floor – looking finished and playable," says John. "And like nothing else I'd ever seen." Paul was also attending the show, and the game made a similar impression on him. "It sounds incredibly corny, but I couldn't believe my eyes. I was gobsmacked, bowled over."

That initial showing elicited strong emotional reactions from all who saw it. "I was so excited, I tried to impress the hotel staff with my bagful of press materials and transparencies," Paul confesses. "They were not impressed." According to John, other people were feeling something closer to fear, or at the least denial. "I don't know if it's true but I heard a rumour that 'Sony execs' were going around telling people that the game was running on hidden 'workstations'," he recalls. "Hard to believe now but a lot of the technical elements (MIP mapping, filtering, perspective-correct textures, z-buffering, hardware anti-aliasing) were all new to consoles and not present on PlayStation."

The version of *Super Mario 64* shown at Shoshinkai in November 1995 might not look immediately recognisable to fans – even the familiar entrance hall of the castle is different, lacking the cloud murals and even the central staircase seen in the final game – but that incredible visual polish carried over to the finished game because there was no fabrication or trickery involved. The N64 was perfectly capable of all of those features, and gave *Super Mario 64*'s worlds and characters a feeling of solidity that immediately placed both the game and console ahead of the competition.

"Everything just worked so incredibly slickly," says Andrew Oliver, then running *Glover* developer

» For the first time ever, Mario could dangle from ledges and pull himself up after a close jump.

» Chris Sutherland was responsible for *Banjo-Kazooie* and is now working on *Yooka-Laylee*.

» Unlike the main stages, boss stages were typically linear affairs with little freedom to explore.

> **"This set the benchmark – anyone releasing a 3D platformer thereafter on N64 was going to be compared with Mario by players!"**
> Chris Sutherland

Interactive Studios. "In the 'other camp', we'd been amazed by PlayStation's 3D capabilities. But, whilst Sony pushed all developers to make 3D games, many of us struggled with certain aspects. Cameras were shaky, 3D meshes showed cracks, textures warped and getting a third-person character to feel really nice and for the camera to track it well always seemed just out of reach." Nintendo's game exhibited none of those problems. "*Mario 64* was so professional, no shake, no shudder, or warping or cracking textures. The PlayStation was 32-bit with integer maths and the N64 was 64-bit with floating point maths, so there was good reason it worked so much better."

Mark R Jones, a former artist for Ocean, was similarly taken aback by the leap in 3D quality. "The graphics were jaw-dropping. I'd only really played a few 3D games on the PlayStation and this was a massive improvement," he remembers. "Round things looked round and not like a series of joined up straight lines. The colours were bright and vibrant and, despite many games claiming that playing them was 'like controlling a cartoon', I think that with this game it had really and finally happened for real. I remember everyone at school saying that *Knight Lore* on the Spectrum was like a cartoon back in 1984. But really it wasn't. *Mario* was the real thing. It had actually happened."

The press immediately set the hype train in motion. New images would appear in magazines every month, whipping anticipation up to fever pitch – but it wasn't just the public that was excited. Even developers couldn't wait to get their hands on the game. "Being a fan of the 2D *Mario* series I was fascinated by how they'd brought *Mario* into 3D, what problems they'd encountered and the approaches they took to tackling them," says Chris Sutherland of Playtonic Games. At Rare, then a Nintendo subsidiary, he served as the lead programmer on *Banjo-Kazooie*. "One might have expected the transition to 3D to have been gradual, e.g. Nintendo could have taken a traditional 2D *Mario* course and given it hints of 3D (similar to the *Donkey Kong Country Returns*) but instead they jumped in head first to give the player an immersive world to explore," he continues. "This set the benchmark – anyone releasing a 3D platformer thereafter on N64 was going to be compared with *Mario* by players!"

» Level design was supremely clever – Wet-Dry World required manipulation of water levels to achieve your goals.

» These rolling balls rolled realistically around banked curves, producing lateral movement that could trip unwary players up.

"Word got around the *Killer Instinct* barn that the new *Mario* game was in the building so we all piled into Chris Tilston's room for a gander," recalls Chris Seavor, another former Rare developer who led the development of *Conker's Bad Fur Day*. "I think this was a little bit before it actually released and it was the Japanese version, so nobody could understand any of the text. Needless to say it was pretty mind-blowing. I'd never seen anything like it before. Then Tim [Stamper] turned up looking rather mortified that we were all seeing this 'super secret' thing and took it away… Still, I'll never forget that moment."

Andrew's first experience with the game was equally memorable. "It was the summer of 1996 at the relatively-new E3 show in Los Angeles – Nintendo had a huge stand with around 30 N64s set up and dedicated to *Mario 64* and people queuing three deep to take turns. Most were running around outside the castle – just enjoying the experience of running Mario around a beautiful cartoon fantasy world. They nailed the feel good controls of a character running around a 3D world. Everyone was beaming – it was a turning point for the industry."

The importance of solid controls to *Super Mario 64* can't be overstated. "It was the first time I had played a game where messing around with the character's abilities was a lot of fun even with nothing specific

DIFFERENT STROKES

Mario's 3D debut was so good it launched the DS, too. But the DS version was no lazy port – it was a remake with new features...

MORE CHARACTERS

■ In addition to Mario, three extra characters – Yoshi, Wario and Luigi – were made playable, each with slight differences. Luigi's jumps are higher at the cost of handling, for instance, while Yoshi gets a unique hybrid of his *Yoshi's Island* move set and the original *Super Mario 64* one. Collecting caps mid-level lets you switch between them.

NEW ABILITIES

■ Classic *Mario 64* power-ups like the Wing Cap, Vanish Cap and Metal Cap are split among each of the characters, while new powers include mushrooms that can boost character size and damage (like the Mega Mushrooms seen later in the series) and a fire breath move for Yoshi. Several Power Stars are tied to the character-specific abilities.

EXTRA STARS

■ There are 37 additional Power Stars in the DS version, although several original ones were altered or removed for a grand total of 150. Many of the new ones are Switch Stars (which triggered by a switch and must be collected before they vanish). Collecting every Star still allows access to the castle roof via the cannon in the grounds, although Yoshi is no longer there as he's now playable.

» Rare's Gregg Mayles was the designer for both *Banjo-Kazooie* and *Banjo-Tooie*.

MULTIPLAYER & MINIGAMES

■ VS Mode lets up to four players face off in arenas in an attempt to grab as many Stars and Coins as possible within a time limit. There are also unlockable minigames, which can be earned by catching rabbits in the main game. These are largely simple distractions, all of which are designed to showcase various uses for the handheld's touchscreen.

CONTROL OPTIONS

■ Given that the DS didn't have an analogue stick, Nintendo had to get creative with its input methods here. One option is to use digital control with an extra run button, although this lacks precision. The other uses the touchscreen as a virtual analogue stick and, while tricky to get used to, this is the best of the two options once you manage to adjust to it.

IMPROVED GRAPHICS

■ A combination of decent processing power and a smaller screen means that many aspects of the graphics see a marked improvement on DS – Bowser's model in particular is more in line with his modern look, while there are plenty of notable changes (most for the better) over the course of the game. The second screen is also used to display an overhead course map.

» Jumping over waves of ice is just one of the challenges in Snow Man's Land.

to do," says Gregg Mayles, a Rare developer and *Banjo-Kazooie*'s designer. "It has still not been beaten, in my honest opinion," Chris Seavor adds. "Slick, tight, great animation and totally intuitive. The first attempt at such a control type and they nailed it for the ages." In fact, he found that even the difficult aspects of controlling the portly plumber provided satisfaction. "There was a particular mechanic that took me ages to get to grips with, which involved jumping off a wall, I just couldn't do it. Then one day all my muscles suddenly twigged, and the sheer joy of jumping up and up from wall to wall, in 3D, was a revelation."

Paul's first impression of the game centred on "using the central, solitary analogue stick to help Mario perform backflips and dodge and weave around the first level of the game", and it was the analogue stick that did a lot of the work in making the game feel so good. John explains the appeal well: "The self-centring thumb stick was the first viable analogue joystick I'd come across. Analogue sticks have been around forever but they were always near-enough impossible to use. *Mario* had effortless, expressive, intuitive control of a character in a 3D world," he says. "Back then, it was more or less accepted that 3D platformers don't work. There had been a few noble attempts but they were all difficult and confusing to play. Usually the gameplay was about overcoming the controls and camera restriction," he continues. "*Mario 64* had you running, skipping, backflipping, climbing trees and even flying. Nintendo had done the impossible."

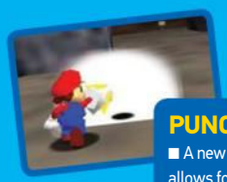
Of course, all of that excellent control would have been for nought if the game didn't provide adequate space to utilise it, and challenges to overcome. Nintendo delivered in both regards. Paul remembers the sense of disbelief in the office at the time. "The art designer of *C&VG* was asking me all these questions, because he doubted that much of what he had heard was true: 'Can I just run onto that bridge and jump into the water? And then I can swim? Under the water?'" For Gregg, the structure was as important as the space. "3D games up to this point felt restricted in where you could go and what you could do, but *Mario 64* removed these restrictions," he explains. "The freedom made the worlds a joy to explore, coupled with an progression system which allowed you to tackle challenges in the order you wanted to."

MARIO'S MARVELLOUS MOVES

A closer look at the portly plumber's amazingly agile abilities

MOVEMENT (Analogue Stick)

■ Full control over Mario's movement speed is an integral aspect of the game, allowing for a degree of freedom and precision that digital control simply can't offer in 3D space.

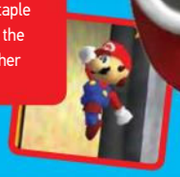


PUNCH B

■ A new addition to Mario's arsenal, this allows for more ways of interacting with the world, whether that be hitting blocks and switches or smacking enemies instead of jumping on them.

JUMP A

■ Perfect for when you don't want to be on the ground any more, Mario's staple move is as versatile as ever here – the longer you hold the button, the higher Mario will jump.



CROUCH Z

■ Where once you would just press down on the D-pad to make Mario crouch, here a bespoke button is needed. Rarely required on its own, but frequently incorporated into advanced techniques.

DOUBLE JUMP A, A

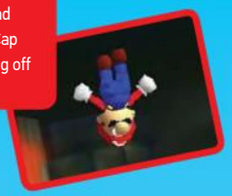
■ Time a second jump for immediately after you land from the first and you'll launch Mario slightly higher, with an audio cue to let you know you've performed this successfully.

KICK B (While jumping)

■ There's more to this move than it seems – it maintains Mario's momentum from whatever he's doing, making it a key ingredient of any speedrun rather than an offensive move.

TRIPLE JUMP A, A, A

■ A third timed leap is also possible, this time giving a much more obvious and useful height boost. With the Wing Cap on, this move will send Mario soaring off into the sky.



DIVE B (While moving)

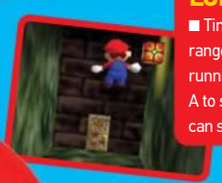
■ Casual players might not like this move on account of how often it comes out instead of the punch while moving, but experts swear by it for grabbing objects without losing too much momentum.

BACKFLIP Z + A

■ Similar to the direction-changing somersault, only performed from a static crouch. Given Mario's general mobility, the somersault is generally considered to be more useful.

SWEEP KICK Z + B

■ Useful for making Mario perform extremely brief breakdancing displays, but not a lot more, sadly. Still, variety is never a bad thing, so bust a move from time to time!



LONG JUMP Z + A (While running)

■ Timing is key to mastering this long-range leap – press and hold Z while running to crouch-slide and quickly press A to send Mario flying. Bold use of this can skip many obstacles and hazards.

CLING (Land near platform edge or slowly walk off ledge)

■ Mario no longer has to fear death from slightly misjudging distance. Fall just short of a ledge and you'll grab the edge and can pull yourself up, sacrificing speed for safety.

SOMERSAULT (Analogue stick away from direction of running) + A

■ Jerk the stick away from the direction of travel and jump to perform a flip that goes much higher than a regular jump – great for quickly getting a vertical boost.

SLIDE KICK Z + B (While running)

■ Performed in the same manner as the long jump, only with B instead of A. This will earn you extra style points, but it's far from an essential part of Mario's repertoire.

WALL JUMP (Jump at wall, analogue stick away) + A

■ After launching himself directly into a wall, Mario can kick off it to change direction and gain height. Timing and execution are tricky, but mastery allows for some amazing shortcuts.

"With Super Mario 64 being the first of its kind, that became the de facto place to look for inspiration to solutions"

Chris Sutherland

» Chris Seavor was the brains behind *Conker's Bad Fur Day*.

» The camera would intelligently move to positions, likely to provide a helpful perspective.

Instead of the simple 'reach-the-goal' gameplay of 2D platform games, each course in *Super Mario 64* offered a selection of challenges, each of which awarded a Star upon completion. They could range from simply locating red coins to defeating bosses, winning races or just difficult platform challenges. Even Peach's Castle, the hub through which every other level was accessed, held Stars to find. Naturally, every player had their favourite moments. "Cool Cool Mountain was a favourite," says Gregg. "The way the slide race connected the top of the level to the bottom was really clever and Mario getting stuck head first in snow after a long fall was pure, indulgent charm."

"My memory is really fuzzy, but when I try to recall anything it's like looking at my happier moments of childhood," says Paul as he recounts some personal highlights. "Swinging Bowser by the tail. Finding that bottle underwater somewhere and being convinced that it held a door to a secret zone or something. We thought there would be treats hidden everywhere, and usually there was. Chasing the rabbit, because it was running away so may as well, and being led to something special." Mark found himself astounded by the longevity of the game. "Even later on, after you'd been playing the game for hours, there were new things to see," he remembers, "like when Mario turned into liquid metal. You then have this completely metal Mario, like the baddy from *Terminator 2*."

As soon as *Super Mario 64* became available in Japan on 23 June 1996, it began to receive rave reviews from the press. The list of accolades could run for pages, so we'll cut it down somewhat – 97% from *GamesMaster*, 96% each from *N64* and *Total 64*, 95% in *64 Magazine*. For the first time ever, *Edge* awarded its highest score of 10. Paul Davies called it "the best console game ever" in *Computer & Video Games* and he wasn't alone in making that claim, as *Maximum* concurred in its final issue. Enormous sales success accompanied the critical acclaim, with over 11 million copies making their way to players.

While *Super Mario 64* served as a source of boundless joy for players, it served as an enormous kick in the rear for developers of other 3D games – Nintendo was way out in front and everyone else was playing catch-up. "Every developer studied that game. Even more than ten years later it was quite common to see programmers boot up *Mario 64* to see how some aspect of the controls or camera systems worked," says John. "I'd say the first result of that was *Tomb Raider* which clearly benefited from that Shoshinkai 95 showing – particularly with the swimming controls."

Mark has a similar take on the game's influence. "It did definitely pave the way for the next generation of 3D platformers. Later games like *Banjo Kazooie* and *Donkey Kong 64*, two of my most favourite N64 titles, wouldn't have been as good had *Mario* not been as well put together," he remarks. "You can just see the programmers at Rare having *Super Mario* set up next to their stations looking at it and saying, 'Right, now we have to do *that* bit better.' And in a lot of cases, they did. But Mario showed the way forward."

Mark is dead on the money – the developers at Rare were definitely influenced by the work of what was then their parent company when creating those games. "At the time we [were] experimenting with a '2.5D' look for a platform game that felt like an evolution of the *Donkey Kong Country* games we had created, but after seeing *Mario 64* we knew fully-3D worlds were going to be the future," Gregg confirms. "In the past if we've looked to solve a problem we'd often look to see how other games have tackled similar issues," Chris Sutherland says. "With *Super Mario 64* being the first of its kind, that became the de facto place to look for inspiration to solutions when we started building 3D platformers on N64."

However, there were definitely areas in which the *Banjo-Kazooie* team looked to improve upon the *Super Mario 64* experience, and they put a lot of effort into distinguishing their game from Nintendo's classic. "We wanted to ensure *Banjo-Kazooie* had the Rare feel. I wanted Banjo the bear to have a very solid and predictable feel to his control, as opposed to the higher level of skill required to master the inertia that sometimes made *Mario*'s control challenging," notes

» If the camera ever proved unhelpful, you could even utilise a Mario's-perspective camera view.

» Mario's classic animations were transferred flawlessly into 3D, like this jumping motion.

Gregg. "I also wanted our worlds to feel a lot more grounded, basing each one in believable realism that was given a fantastical and humorous twist."

"We wanted to see more visual detail," Chris Sutherland elaborates, "especially as we'd just been producing very detailed prerendered visuals with games like *Donkey Kong Country*. The challenge is to not overwhelm the player with detail – it still needs to be clear what items can be walked on, when a floor is slippy and so on. Likewise, we wanted the architecture/geometry of the worlds to be more complex and interesting – but in doing so, the camera that follows the player needs to become more complex and clever to handle unusual situations and to avoid confusing the player."

Getting the camera right is a task that Gregg remembers vividly. "When I played *Mario 64* I didn't feel the camera was that good, but the reality of just how hard a job this is to get right become apparent when we created our own camera systems," he reminisces. "In hindsight, *Mario*'s camera had the right goals in trying to be as dynamic as possible and mostly got it right. The 3D worlds that we created were even more complex than *Mario*'s and created major headaches for us. Sadly a good camera system is invisible and something nobody talks about, but one that has even minor problems gets a lot of attention."

With Rare more accustomed to 3D game development by the time of *Conker's Bad Fur Day*,

» Metal Mario: heavy, but pretty unlikely to try to murder the young John Connor.

PLUMBING THE DEPTHS

Pushing Mario 64 in ways you wouldn't believe

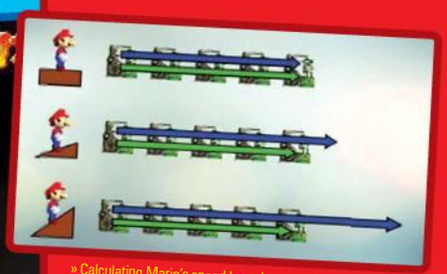
As one of most-played games on the speedrun circuit, *Super Mario 64* has been pushed to the limits over the 20 years since its release. Countless bugs, glitches and quirks have been discovered in that time, some of which help towards the goal of getting completion times down, while others actively go against that concept. On the former front, various skips have been found that avoid triggering instances of text or brief cutscenes, each shaving valuable seconds off times. Far more noticeable, though, are the effects of the more significant glitches, most of which involve performing a backwards long jump (or BLJ for short) or some variant thereon. These can be used to skip the Star Doors that would otherwise gate access to the Bowser encounters, as well as the 'infinite staircase' that leads to the final level and showdown, making it possible to clear the game with far fewer than the 70 Stars usually required – the minimum was thought to be one (Board Bowser's Sub in Dire, Dire Docks) for a good while until an even more complex version of the BLJ trick was found that let that stage be skipped as well, opening the door to 0-Star runs (and ironically doing so without opening the door). These tricks allow for the credits to be reached in just a little over five minutes, while various categories exist for players who would still chase world record pace without having to use said tricks to do so.

At the other end of the spectrum lies the work of YouTuber pannenkoek2012, whose channel is filled with literally hundreds of videos in which he does everything from collecting every possible coin in each level to showcasing various glitches and oddities in the game that you won't see in a more refined speedrun where they would literally only cost time. More recently, however, he has found fame for a series of videos in which he attempts to collect many of the game's Stars in as few presses of the A button as is possible. These challenge runs, while interesting, only really started to garner attention in the last year or so, with commentated

» *Super Mario 64* is the most popular game on speedrun.com, with over 1,000 runners across a bunch of categories.

versions of several videos going so deep into the science of how each run works as to turn glitch mastery into an art form. In these videos (which are incredible, it must be said), you'll see how every stage exists on a near-infinite grid of so-called 'parallel universes', which have collision but no geometry; you'll hear terms like 'QPU Alignment', 'Syncing Speed', 'Half A-Press' and 'Held Object's Last Position' used in explaining feats of extreme mechanical manipulation; you'll discover just how long Mario needs to run on the spot in certain locations to build up enough speed to perform some of these crazy glitches (spoilers: it's *12 hours*).

Many of us reflect on *Super Mario 64* as an incredible highlight of our gaming lives – an amazing introduction to 3D gaming that set the stage for much of what came after. But for others, it's an obsession. And whether that means treating it like a race or like an in-depth science experiment, the fact that players are still discovering new things about this game two decades after release is nothing short of incredible.



» Calculating Mario's speed based on terrain is an integral part of successfully visiting parallel universes.

Further Reading:

speedrun.com/sm64 - The fastest runs of the game – 70-Star and 120-Star runs are pure skill exhibitions, while lower categories combine this with glitch exhibitions.

tasvideos.org/SM64TASHistory - Tool-assisted videos that show optimal routing and the evolution of glitch-led runs, from the first 16-Star run back in 2005 to the effectively perfect run recorded in 2012.

youtube.com/pannenkoek2012 - pannenkoek's YouTube channel, which goes into insane depth on just how far *Super Mario 64*'s mechanics can be twisted and broken.

» Andrew Oliver is well aware of creating 3D platformers for the N64, having made *Glover*.

many of those initial technical challenges were less of a problem. Still, it was a game which tried to top *Super Mario 64* in certain areas, and Chris Seavor pulls no punches in pointing them out. "The visuals… let's be honest, *Mario 64* had some ugly-looking assets in there," he notes, and it's fair to say that *Conker* came out ahead in this regard thanks to Rare's knowledge of the N64's hardware, and particularly its texturing quirks. The structure of the game was tweaked too. "We also added more of a narrative to the world, driving the player forward not so much to get the next Star, but to see where the stories and characters lead you."

Still, Gregg is under no illusions as to how difficult it was to compete with such a groundbreaking game. "*Mario 64* got so many things right that it was hard for following games to make significant improvements," he opines. "Other games had more impressive visuals, used the performance of the hardware better and created worlds that had more depth, but few got close to matching things like *Mario*'s control."

> **"Mario 64 got so many things right that it was hard for following games to make significant improvements"**
> Gregg Mayles

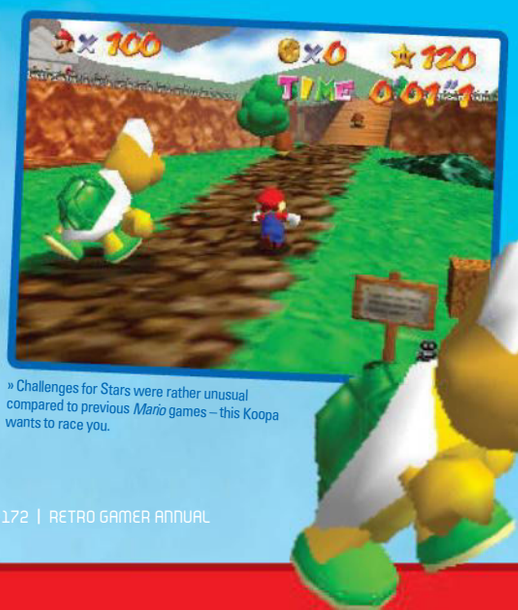
Over at Interactive Studios, the *Glover* team was discovering the same thing. "*Mario* set a high bar of quality to meet," says Andrew. "We were prototyping *Glover*, first on PC and then on an N64 dev kit, and we were getting great results that we were very happy with. But suddenly, we were playing a huge game that had solved a few problems more elegantly that we had. For example, it had smoothed-skinned characters, unlike the hinged, segmented 3D characters that PlayStation and *Glover* had! We decided we had to ensure our characters looked just as smooth and had to work out how to make an animated skinned character renderer." That wasn't the only innovation that Andrew and the *Glover* team had to compete with. "We just spent ages trying to work out what the logic was for the camera so we could get somewhere close," he remarks. "Technically we figured out most things, as *Glover* demonstrates, but *Mario* was still obviously a better game."

With the developers telling us how far they went to match Nintendo's effort, it's clear that *Super Mario 64* had a huge impact on videogames, so we asked them to quantify it. For John, it was a game that accelerated the pace of progress in game development. "Nintendo solved the problems of third-person control in 3D video games and presented the industry with a 'how to do it' in the form of *Mario 64*," he says. "I think the industry would have figured it out eventually without Nintendo's help but *Mario 64* saved us probably five years worth of failed experiments and clunky controls."

For Andrew, it was nothing less than proof that polygon technology was actually viable. "It made everyone realise that 3D was the future, and not just of driving games, but all games! It looked so good, and gave some personality to the characters," he says. "The worlds were big and interesting and it immersed players in a deep and beautiful fantasy world. Over on the PlayStation, it still felt that 3D was struggling and whilst technically impressive, the gameplay or graphics were generally suffering for the 3D experience. *Mario 64* showed the way forward for the whole industry!"

"It was the first of its kind and a genuine 'Wow Moment' in gaming that excited even the most jaded of people. It was a combination of revolution combined with one of the most prominent and successful series of games," says Gregg, summarising the legacy of the game. However, he also adds a important point: "It's also stood the test of time. Play *Mario 64* today and it's still got the ability to transform you into a playful child where just doing things without thought is great fun."

That's the key thing to remember about *Mario 64*. It was undoubtedly a groundbreaking and technologically-impressive game, as the developers we've spoken to have testified. Time marches on though, and other games have entered the conversation as points of reference for 3D game design. If *Super Mario 64* had just been a technical achievement, we'd remember it as an important release. But *Super Mario 64* was always a supremely enjoyable game first and foremost – and the decades that have passed since it released haven't dulled that in the slightest.



» Challenges for Stars were rather unusual compared to previous *Mario* games – this Koopa wants to race you.

» Using the analogue stick gently, Mario can tiptoe past this sleeping enemy without waking it.

There were years when I didn't play it and when I got back into retro games I worried that it might not have aged well and I was hesitant to have another go at it," Mark confesses. "But I can happily report that even now, with the novelty of the graphics having worn off, *Mario 64* is still one of the best and most fun games to play on any machine *ever!*" He's in no doubt as to why that is, too. "Nintendo didn't just rely on the graphics to wow everyone, they also concentrated on the puzzles and gameplay. So they still spent as much time on the gameplay as they had done on the previous *Mario* titles but had added in this huge world that seemingly burst out of this little bit of plastic you just stuck in the top of your machine before you turned it on."

That's why *Super Mario 64* is still as relevant today as it has ever been. The kids who grew up with N64s are adults now, and their love for the game and its successors is the reason behind the success of crowdfunding campaigns for traditional 3D platformer revivals, including *A Hat In Time* and Playtonic's *Yooka-Laylee*. *Super Mario 64*'s supreme gameplay is the reason that people are still playing today, years after most people nabbed that last Star and had a chat with Yoshi on top of the castle. People simply aren't tired of the game – and if you needed any proof of that, hop online and look at the abundance of *Super Mario 64* speedruns, challenge runs and modified versions.

But don't take our word for it. Dig out a copy of *Super Mario 64* and start up a new file. Spend a minute or two pottering around the castle to get a feel for how Mario controls before leaping into Bob-Omb Battlefield. We'd be surprised if those few minutes don't turn into hours – and years later, developers are still trying to make games that are so compelling.

» Most of the extended cast was absent for *Super Mario 64* – Luigi doesn't appear, and Yoshi only has a cameo.

LEAPS OF FAITH

Five games that made the jump to 3D in style...

METROID PRIME 2002

■ Many wondered how the exploration of *Metroid* could ever work in 3D, but Retro Studios came through with the perfect answer. Encapsulating *Metroid*'s sense of isolation and freedom, while being a showcase for the GameCube, it's one of the greatest examples of 2D-to-3D done right.

THE LEGEND OF ZELDA: OCARINA OF TIME 1998

■ Just as it had done with *Super Mario 64*, Nintendo embraced the third dimension when updating *Zelda* for a new generation. The game was imbued with a very real sense of verticality that helped make it absolutely jaw-dropping.

GRAND THEFT AUTO III 2001

■ Alongside *Super Mario 64* and *Ocarina Of Time*, *GTA III* was instrumental in establishing the template for modern 3D games, especially open world titles. Minimal prelaunch fanfare only made its impact all the more incredible and it had a real sense of place and personality.

FINAL FANTASY VII 1997

■ A curious case study, as the move to 3D graphics actually had little impact on the gameplay formula. It did, however, allow for impressive cutscenes and a more cinematic feel – two things that both tied in beautifully to the greater storage capacity CDs had over cartridges.

METAL GEAR SOLID 1998

■ As with *FFVII*, the polygons of *MGS* allowed for a then-unprecedented level of cinematic presentation. Kojima and his team took this concept and ran with it, too – Snake's PlayStation sneaking mission is widely accepted to be the birthplace of modern cinematic gaming.

...and five that stumbled and fell into the depths of infamy

FADE TO BLACK 1995

■ Many would argue that *Flashback* never needed a sequel, and this oddity serves as evidence for the truth of that statement. Crude 3D visuals were a far cry from the mind-blowing original, it's redeemed somewhat by its decent character animation.

BUBSY 3D 1996

■ Famously one of the worst games ever made, this took the unlikable *Sonic* rip-off, dumped him into an ugly 3D world that looked to be made out of placeholder assets and left it at that. Random deaths and horrendous pop-in abound in this abhorrent waste of time and money.

EARTHWORM JIM 3D 1999

■ Handing the reins to an untested developer for something so difficult as making the jump from 2D to full 3D doesn't sound like the best of plans, as this effort proves. Bland environments were a departure from the colourful backdrops of the original and the camera had a mind of its own.

CASTLEVANIA 64 1999

■ One of the reasons people thought *Metroid* could never work in 3D was that *Castlevania* struggled to transition. Camera once again proved to be fatally flawed in early attempts at 3D vampire hunting, at odds with the pinpoint precision for which the series was known.

PRINCE OF PERSIA 3D 1999

■ While this 3D debut wasn't as dreadful as some efforts, its poor control and awkward animations were just made to look even worse thanks to how impressive these aspects had been in the original game. The camera was also horrible – a standard pitfall of 3D gaming.

Inside Outing

BETTER ON AMSTRAD? OF COURSE IT WAS

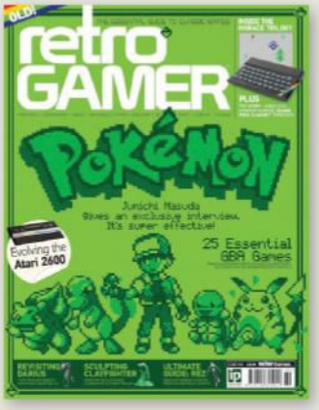
RETROREVIVAL

» AMSTRAD » THE EDGE SOFTWARE » 1988

As much as I loved the Amstrad, owning one didn't always make things easy for me. You'd have to put up with constant poor ports from lazy developers, as well as abuse from so-called friends who thought it was funny to tease you whenever they saw a game that was worse on your machine than it was on theirs. I'd put up with these slights with a certain amount of stoicism, partly because that's my nature, but also because in some cases I knew they were right. Sometimes though, a game would come along that played massively to the Amstrad's strengths and it was those times that I'd gleefully shove that proof in my friends' faces. We all did, right?

Inside Outing was one such game. The Amstrad was an absolute powerhouse when it came to creating stunning isometric adventures and *Inside Outing* by The Edge Software was no exception. Brilliantly-designed rooms, gigantic-looking, colourful sprites and smooth movement all combined to create a truly remarkable game that still holds up exceptionally well today. Yes the sound was rubbish, but the gameplay, the gameplay was wonderful. Playing as the thief, Raffles (an alternative name for the game in some locations), you had to search a huge mansion for 12 gems, which had been hidden by the manor's now-deceased owner and are now required by his grieving widow. While some of the diamonds are in easy view, others are deviously hidden away, requiring you to solve clever little puzzles to retrieve them.

It wasn't always easy being an Amstrad owners at times, but when gems like *Inside Outing* appeared it made all the heartache, all that wondering about whether you backed the right console, instantly vanish. Play it now, while laughing in the faces of your C64 and Spectrum-owning mates.



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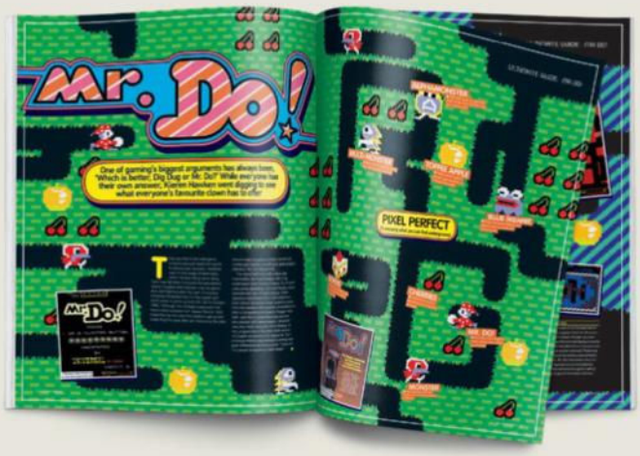

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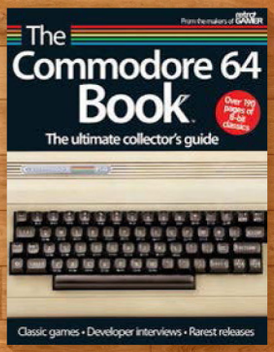

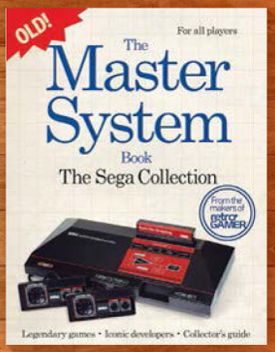

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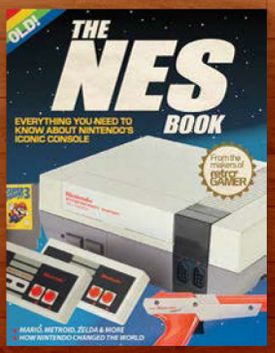

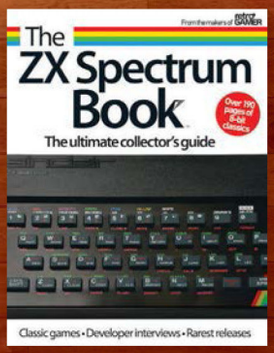

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